

# REBECA PUEBLA

>>The Making of 'Sangyeng'



## NEW TEXTURING SERIES!

>> starting with 'preparing a model for mapping and unwrapping'

## JOAN OF ARC

>>continuing complete monthly tutorial for Maya, Lighwave, C4D & XSI

## DIGITAL TUTOR

>>Taking a look behind the scenes of the Training Gurus

## RAPHAEL LACOSTE

>>the Art Director for Ubisoft interviewed.

dynasty warriors 3



## 3dcreative

www.3dcreativemag.com

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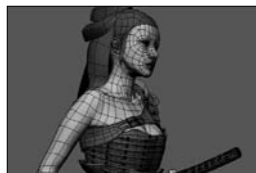
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specimen-dareoner  
Mohsen Mousavi  
Scott Morgan  
Vitaly Bulgarov.



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## REBECA PUEBLA

This is a brief "making of" about her last work "Sangyeng".  
which shows some samples of modeling, as well as the  
parameters of renders, lights and shaders

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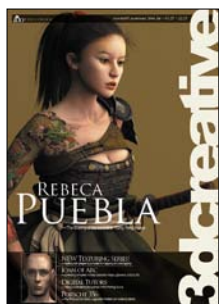
## SHORTS DRAWER

Win one 5 Double DVD Sets

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## RECRUITMENT

More Jobs this month.



## WELCOME

to January's issue of 3DCreative and from the Zoo Publishing team here we would like to wish everyone

a Happy and prosperous 2006!

This fifth issue is packed out as usual with regular articles and tutorials plus some new features as detailed below, read on and enjoy

## TECHNIQUES AND TUTORIALS

Ranging from image over views such as Rebeca Puebla's cover feature to latest instalments of ultra detailed series tutorials (yes Joan Of Arc reaches stage 5 of 8 in another whopping 58 page extra download!) we have a lot covered. The Porsche series by Karabo Legwaila concludes with the Interior and Wheels and we start a new texturing masterclass series by Richard Tilbury, this is non software specific, cover many texturing aspects, such as unwrapping, high & low poly texturing, custom painting and much more.

Written by industry experts such as Richard especially for 3DCreative Magazine.

## INSPIRATION

Two stunning portfolios are presented in the form of interviews with J.Defontaine and Raphael Lacoste. Read how they found their paths in this industry whilst taking in their fantastic imagery. Our regular gallery feature '10 of the Best' is here showcasing the very best of what's landed in our inboxes over the past month. We are hoping to introduce another new feature next month, where the artists from the previous months gallery give an overview of how they made their images.

## INDUSTRY

Digital Tutors give us a run down of how their 'CG Training Company' started, progressed and where they are headed. Find out about their products and how they could enhance your skills. A52 are inspired by the winter and detail how they created post artistic snow effects in Francois Vogel's Lexus "Any Road" Spot.

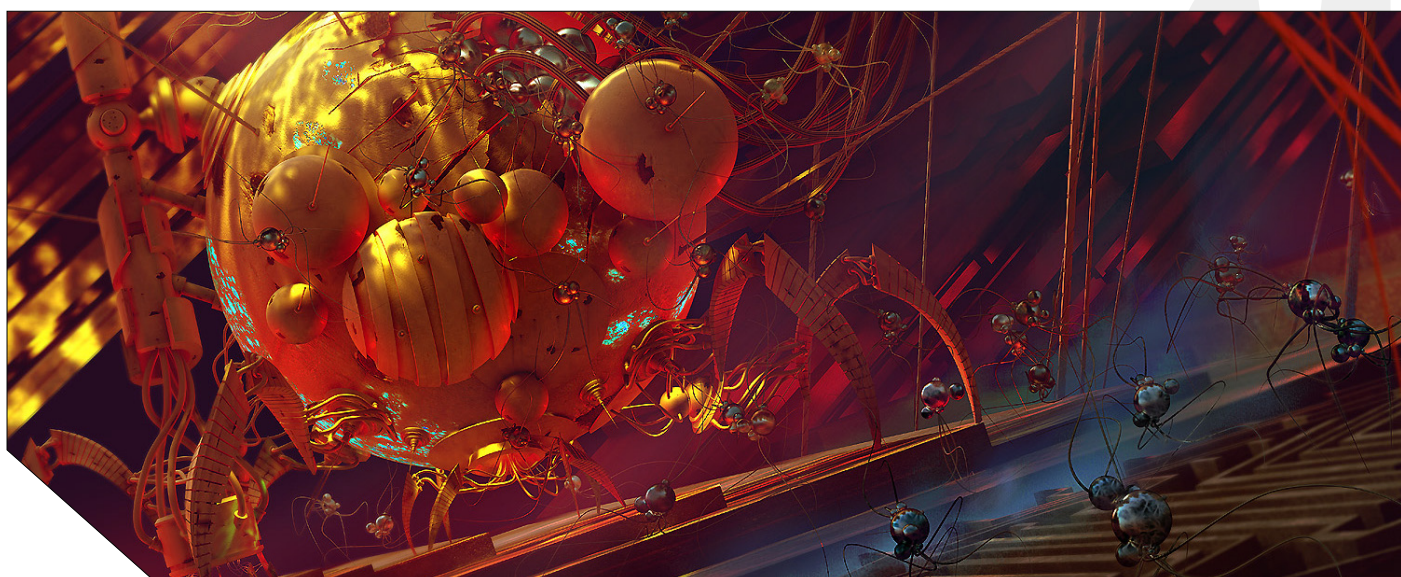
We have our monthly competition to win one of several copies of 3DTotal's new 'Shorts Drawer

DVDs' and a new recruitment section appears near the end of the magazine with a selection of vacancies from top studios!

Phew! After writing this it seems the magazine is growing more and more each month, our aim is to give you excellent value for money and to keep your creative minds engaged with top quality viewing or a few hours (or maybe days!).

## ABOUT US

Zoo Publishing is a new company comprising of a small team here in the Midlands UK. This magazine is our first project which we are hoping with the support of the community will build into a great resource and a highly anticipated monthly release. This issue is supported by 3DKingdom, 3DLinks, 3DPalace, 3DTotal, 3DValley, 3DM3, the123D, CGChannel, CGFocus, CGUnderground, ChildPlayStudios, DAZ 3D, Deathfall, Kurv, 3D Monkeys, 3DNuts, 3DExcellence, SpinQuad, the3DStudio, Vocanson, CGDirectory, Digital Tutors, M<ax-Realms and Mediaworks and we look forward to lasting and successful partnership with these CG community sites.





Interview

## AN INTERVIEW WITH JACQUES DEFONTAINE

Hi Jacques can you tell us a bit about yourself?

My name is Jacques Defontaine, I live in Belgium, a little village close to Brussels. I've been working in the CG industry for about 10 years and I'm self-taught. I actually studied electronics, computer analyst and foreign languages. I couldn't finish all of them as I tend to get easily bored if I'm not passionate by what I'm doing.

What made you go down the 3D route?

I've always been interested in Arts. When I was a kid, I used to draw a lot, trying to reproduce famous singers, actors or actress for my (girl) friends at school. When I got my first computer, a friend of mine told me about Lightwave, I bought it and from that day on, I knew it was what I'd do for the rest of my live. 6 months later, Casterman publishing was looking for artists for an ambitious game



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project, The Amerzone (by Benoit Sokal). It was my first experience, it was great and we had a lot of fun.

You became freelance in 2004, but what made you decide to do this than work full time for just one company?

I think, it's mainly because I like working on my own... being alone without a boss standing in my back and telling me what to do. I also wanted to work on different projects and being able



to choose these projects. I couldn't really do it at the beginning though. Another big reason is that I can now mostly work from home... I hate getting stuck in the traffic twice a day. It used to taking me 2 hours per day to go to work. If you do the math, that's about 40 hours per month... That's 1 weeks work that you spend in your car and I hate losing my time. Besides, when you have enough jobs, you can also make quite a bit of money, while on the

other hand, you can beg your boss for years, just to get a little pay rise.

**Being freelance do you aim to get a mixture of work or do you just aim for one specific area?**

I enjoy working in different areas but I think my favourite would be working on movies. The problem is, Belgium is a very small country and it's quite rare that we have the opportunity to work on such projects. Besides, I'm married

and have a daughter so moving out is not really an option. I just hope some day, big US studios will rely on the potential we have here in Belgium and the rest of Europe. SFX is also a lot cheaper here than in US. Anyway, one of my dreams would be to work on movies such as LOTR, King Kong or full CG feature like Shrek or Final Fantasy.

**Being a very good allround 3D artist, is there one area that you think you need improvement on?**

Thank you! I plan to be good someday but that's going to take a while. Actually, I have thousands of things I'm trying to improve everyday... my goal is simply... not limit!

I definitely enjoy organic modelling, texturing and lighting.

One thing I started not long ago is animating. I like it as well but that's not easy to do everything and life is short.

My goal would be to be able one day, to make CG so realistic that nobody could tell the difference... especially human, in terms of look, motion and particularly expressions! That's what is so cool in our job... you learn and improve everyday.

**Could you describe the process you go through when you start a new model?**

That depends on lots of things but basically; I start by collecting as much references, info as possible.

I then check if there're any real challenges or things which I'm not familiar with. I start the overall model using the

usual way or in Zbrush by sculpting it. Then comes the part everybody loves, UV mapping. It's not cool but we start having quite efficient tools at our disposal so that's not as hard as it used to be. The next step is collecting all the textures I need for the model. There're lots of good free textures on Internet, I have a couple of textures DVDs and also often use a digital camera.

I spend quite some times adding details, looking for flaws and tweaking. When the model is at 50%, I start putting it in an environment and set a basic lighting to check for flaws. The rest is tweaking over and over again until I find it interesting.

**If you could work on one game what would it be?**

There're lots of them but my favourite type is definitely Half Life!

**Would you like to work doing visual effects for film?**

Of course I'd like, the problem as said previously is location but you know... for as long as there's life, there's hope.

**What or who inspires you whilst you work?**

I globally like what's it's beautiful, I often get inspire by movies but there're also lots of great artists which help me improving my skills and give me new challenges. If I find artworks which I find pretty good, I use it as reference/challenge and I won't stop until I get as close as I can. I doesn't necessary to be realistic but it has to be challenging.

**What is one piece of advice you would give to any artist looking to get into 3D?**

I'm not too good at advices but there're a couple of things which I find important. Always try to set up some kind of a preproduction period. I find this part very important... that's not always possible though. For human or animals modelling, buy/study anatomy books, there're almost essential. Realism is a very good ex-





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ercise/challenge... style can come afterwards. Besides, if you watch movies such as Finding Nemo or Shrek, they're always using reality as reference and sometimes, even if the movie is basically more cartoon, it's mainly in the animation part. It's just that, they stop where they find it might be too realistic for the overall style of the movie. Learn to observe... It's definitely essential and unavoidable if you go for realism. Last one... keep in mind that you were not born talented, you might have a gift but talent doesn't exist without continuous work and passion... this is just my opinion though!

INTERVIEW : CHRIS PERRINS





Interview

## AN INTERVIEW WITH RAPHAEL LACOSTE

**Hi could you tell us a bit about yourself?**

Raphael Lacoste, I was born in Paris in 1974, I grew up for 2 years and a half in south Algeria, after, Bordeaux, south west of France. Now I live in Canada and work as Art director. I'll soon be the father of a baby boy!

**What first got you started in CG?**

I was always looking outside the windows when I was at school... I was a boy in the moon (I'm still :) I drew a lot during the courses... finally I went to the Fine art school of Bordeaux where I studied photo and video in the "art and Media" option ... Fine arts were very "conceptual - Art" oriented and I didn't find my way in this very closed area, very hermetic and like the new temple for sophism... During my studies I worked for a theatre company, I was photographer and did also a few sound tracks for theirs shows. When they had the opportunity to work on "The little Prince" of St Exupéry, they offered me to do pictures that would be projected on a giant screen behind the stage! I was very excited to work on this project and did my first 3D pictures for this show. I used the Atari TT of my father with a script 3D software called Renderay... This is how I learned to be patient :)

**Could you explain your role as Art Director, what do you do?**

During Preproduction, I have to define the look of the cinematic, I like this period as it is very creative and I have time to focus on concept-



Art. I do color keys for each sequences, find references for modeling, textures, I work with the matte painters to push the backgrounds to the best quality possible in the time we have J. I also work a lot with the directors to find good framings, nice environments to help action.

During production, it is different and more stressful, I spend my day doing approvals for modeling, textures, lighting and compositing and can't sit more than 5 minutes! As we work with all separated elements even for matte painting, we have to work a lot with the leads



to respect as much as possible the original direction.

You work for Ubisoft probably one of the biggest and well known computer games companies around today, what's it like working for them and how does it compare to Kalisto?

It is really different also because it is a French/Canadian company. Here we get the best from Europe and the best from north America, I mean that we have a lot of talents, great concept artists and quite good management compared to my past experiences in Europe, It is more "realistic", we are creating a lot of games that are released and sells a lot. It is not perfect but I feel like I am not working for nothing.



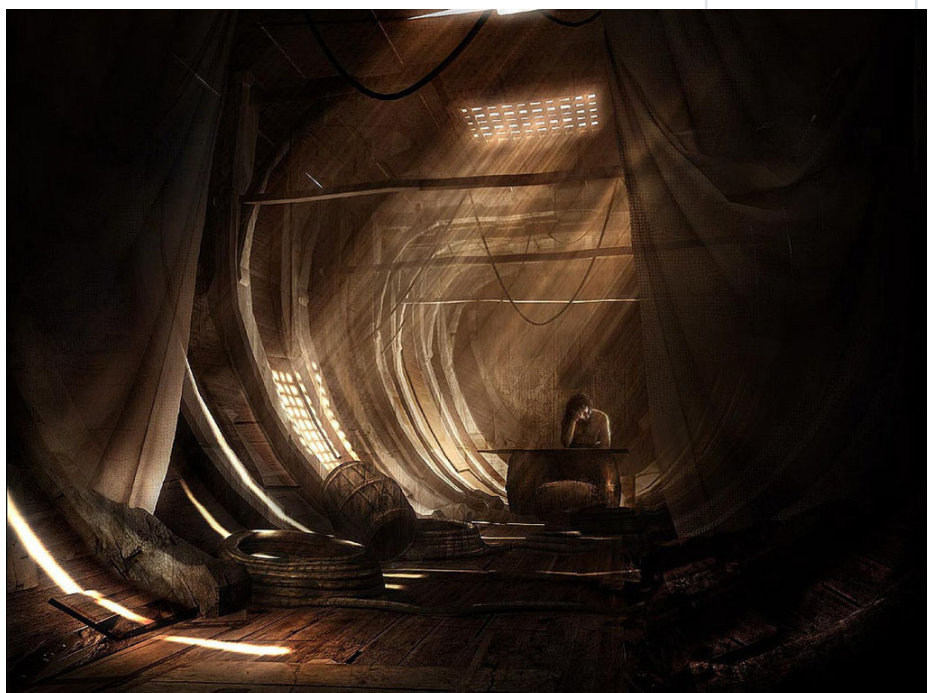
We have also very interesting licenses to work on like Prince of Persia, King Kong, Far Cry ...

And what was it like working on the two Prince of Persia games?

I worked on three in fact! I was Art Director on the Game for the first One, and for the High Rez cinematics on the second and third.

I learned a lot on "Sands of Time", this Game is great and we had a lot of big challenges artistically as we had full interactivity with the environments! Walling, rebound... You have to put details at the right place, keep a readable and plausible, beautiful environment.

The production was difficult, we all learned





from this experience but I keep very good memories. The good thing is that we sold it well and we had an IGDA nomination for best graphics and Art direction!

On the second one It was another challenge, keep the feeling of the Game and push the Art to the Next level in the Cinematics. We didn't work with MattePainting at this time, It was a full 3D environments, the rhythm is very good thanks to Felix-Etienne Rocque (director) and Hugues Martel (storyboard Artist).

I had to find interesting moods and color keys and did most of the environments of the cinematics! Even if I was not doing the Art direction on the Game, I was quite free on the cinematics and enjoyed a lot working on this one.

We won a best Game Trailers award with "Warrior Within" cinematic trailer.

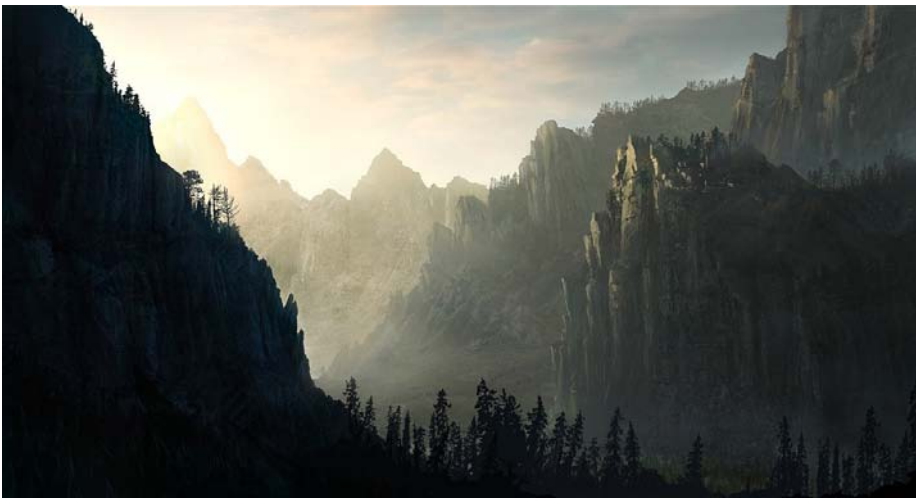
Regarding "The two Thrones", it was I think the best Cinematics Ubisoft has done for now.

I worked with my friend Director Kun Chang who did an amazing direction on the cinematics.

I was Art director for the cinematic studio and was very busy for the 4 months I spent on this project. The good thing was that we were quite free and as we took inspiration from the game, we also influenced them graphically a bit, and this a good point J

We did also a lot of matte paintings, we hired 4 matte painters for this 10 minutes production.

**Which area of CG do enjoy most working in?**  
Light, mood, composition, It is less technical, I love to work on the picture and the feeling that can grow from the image...



**What would be your ideal job?**

Matte Painter Freelance in a hot country!

**Where do you see yourself in a 10 years time?**

Matte painter freelance somewhere in Europe...

**Who inspires you artistically?**

I think that the best way to learn and take inspiration is to learn from history of art, I love the art of Vermeer and Jean-Léon Gérôme

for example, 17th, 19th century Painters, 20th century painter Edward Hopper ...

In Matte painting, I love the work of Michael Pangrazio, Craig Barron and Yanick Dussault.

In photography, Gilbert Fastenaekens and his "nocturnes", Bernard faucon, Lynne Cohen...

**What is one piece of advice you would give to any artist looking to get into 3D?**

First, what is a good 3D artist? In my opinion, 3D is just a tool, it is like a pencil, and if you have good basis in traditional art, you'll be a better 3D artist. It's like a good keyboardist, if he has a strong background in piano, jazz and classic, he will be a better keyboardist, even if he plays dance music...

I think that to have a good sense of composition, lighting, a 3d artist should spend more time taking pictures with his camera, looking around and drawing ...

For more of Raphael Lacoste works please visit his site:

[www.rafael-lacoste.com](http://www.rafael-lacoste.com)

INTERVIEW : CHRIS PERRINS



Interview

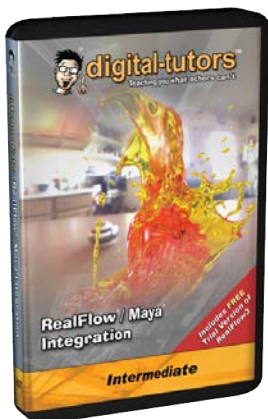
## AN INTERVIEW WITH DIGITAL TUTORS

**When and how did your company come about?**

Our company started out of necessity. As instructors and professors teaching 3D animation in a very fast paced production driven curriculum, the students needed a resource site for extra training or lecture material that was covered in class. So we created a private intranet to help our students. One of our students suggested we make those lessons public and after a lot of thought we decided to share our material with the world. From that point it has simply taken off. Having quality resources to help artists reach new levels fuels our company as we grew from reaching only our students to now reaching millions.

**What led you to set up a company devoted to software training?**

We felt the need in the industry for training developed by training professionals. Developed in such a way that made the principles, concepts, and theories of CG seem easy to grasp for any audience. The projects, methods, workflow, and techniques taught are collaborations between our artists, educators and industry professionals.





**What was the most difficult aspect to forming Digital Tutors and what would you say are the main pitfalls in your business?**

It is difficult to stay ahead of the curve, both in technique and skill-set as this is undoubtedly a fast-paced industry. Working with companies, their development teams, and pushing creative limitations of the software helps us evolve with the times. Often a hurdle to overcome is efficiently working with vendors and developers because of language barriers, time zones, etc.

**What are the most challenging aspects to creating a training DVD?**

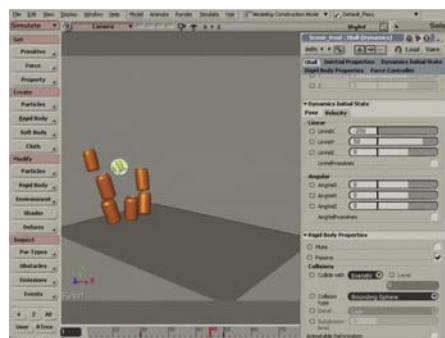
We make sure each training kit teaches skill-sets, techniques, workflow, and how to use them efficiently to maximize productivity in a production environment. Creating harmony between the education side and production side is often difficult, since both require unique goals, needs, and outcomes.

**How do you decide on the types of products to create?**

Largely our customers. We create training largely based on what our customers need and want. This ranges from basic training for a new user to training designed for an artist at a studio. The training is developed so that the user can essentially exploit the software and get the results of which they are looking for. The training is designed to help answer the problems many artists face in "real world" settings.

**What do you think is the key to your success?**

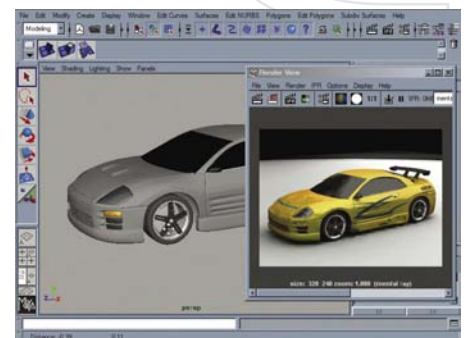
Our staff of trained educators and professors who design the training. Using the same education principles and practices an elementary school teacher would use, we can help a new



and existing users understand concepts and theories that are undeniably intimidating at first encounter. Providing a growing community, fun experience, consistency, and customer service are also keys to success.

**How many in house artists do you employ and what is the proportion (if any) of freelancers that are used in your product line?**

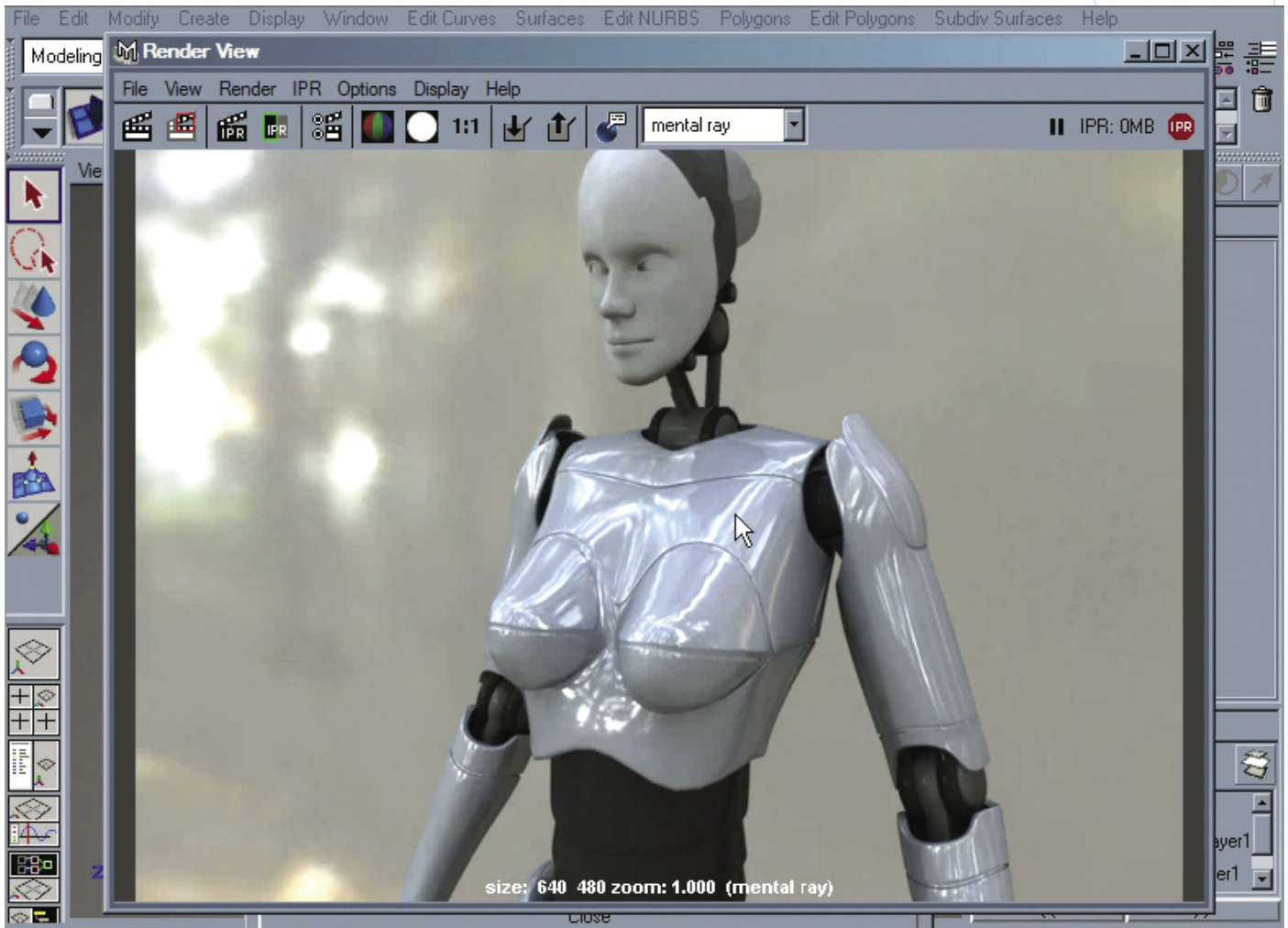
At this time, we do not use freelancers. All of



our material is created in house with our own research, creative, and educational teams that collaborate on educational material. This helps create consistency and familiarity, 2 elements needed for effective learning.

**Are they from very different backgrounds and disciplines with specific skill sets?**

Several different backgrounds helps diversify our team and create better training. We have



programmers turned artist, educators turned programmers, and traditional artists turned digital illustrators. All of our team brings something unique to form our creative environment. Each member of our team knows the components of our company. This helps in relating material to another, passing material off, working efficiently, and most importantly – create well-rounded training products.

**Do you see yourself branching into other software packages in the future?**

Yes, we are constantly evaluating other software packages in addition to our existing training. Most recently, we have added Softimage|XSI, which has been very successful for us and we plan to add several new ones in the coming year. As the industry evolves, so

will Digital-Tutors.

**Compared to other companies in your line of business where would you say you differ the most and provide products that are different?**

I believe our entire library of training is unique for several reasons, most noteworthy, the fact that our training is developed by educators with bachelors and masters degrees in education and e-learning. Also, our community. Digital-Tutors is the largest resource for free online training for Maya, XSI and other creative software. We provide this service so that new and existing users can still learn and enhance their skills, without paying a single cent. Since our sole business is training and education, we proudly give away the secrets, tips, and tricks that are often times unshared.

**With 3d programs constantly evolving and training DVD's becoming more popular do you think there is room in the market for new companies to grow and flourish or would you say that the few established ones have the monopoly secured?**

There is always room for others. You can visit almost any website related to our industry and find some sort of tutorial, but our unique approach, experienced team of both educators and artists, and customer-driven training help us secure our place in the market. Competition and camaraderie are actually great and only makes us work harder at what we do and consistently innovate.

INTERVIEW : RICHARD TILBURY



any road



# ANY ROAD

A52 REMIXES FRANCOIS VOGEL'S LEXUS "ANY ROAD" SPOT TO ADD ARTISTIC SNOW EFFECTS

Back in November, in announcing the launch of its new campaign promoting the launch of the 2006 Lexus IS sport sedan, Los Angeles-based advertising agency Team One's executive producer Jack Epsteen said that his team's goal was to make each campaign element unique. The agency hired award-winning director François Vogel of Paranoid Projects: Tool to direct a set of visually distinctive spots which debuted over the past months. For the newest spot, the team took Chrome editor Hal Honigsberg's finished edit of Vogel's

"Any Road" – showing the new IS in dramatic running footage filmed in normal weather conditions – and asked award-winning visual effects company A52 to "winterize" the spot, from beginning to end.

"We have a long history of relying on A52 for complex visual feats," Epsteen began, "and in this case, we felt that tapping into the company's artistic expertise to add snow effects to this spot would be an interesting way to back-up the 'Why live in one dimension'

tagline. They met the challenge in their typical exemplary style."

A52's team, led by visual effects supervisor Pat Murphy, CGI supervisor Andrew Hall and producer Scott Boyajan, faced several important challenges in fulfilling the agency's request. First, many of the scenes in Honigsberg's original edit used playback effects where the scenes were sped-up to 3X. So, A52's team had to make their effects work in real-time for almost 80 seconds of footage



that, when sped-up and cut back in, played back in about 26 seconds. Secondly, as Pat Murphy explained, "In the original version, you have this beautifully color-corrected car from the transfer that's on a dark black road, and it looks fantastic. When we put the car into a white environment, where it needed to have white reflected into it, we really had to work hard to put the car in that environment but still make it look good."

To address these and other important challenges, here's how the job was handled, from start to finish.

All of A52's work was performed in HD resolution, and that includes a digital matte painting created in Photoshop by artist Helen Maier, who used real photography to build a one-frame digital matte painting to be used as the spot's new background environment. "Our goal was to make it feel as if the snow was a couple of days old, that the sun had been

shining and the snow had compacted," Murphy explained. "Some of the trees might not have snow on them because of the leaves being lighter, wind blowing it off or the sun having melted it down." Maier's multilayered matte included trees, ditches and birms, as well as a new road plate with snow and car tracks on it.

Meanwhile, Flame artist Ben Looram matted out everything except the driving Lexus from

the footage used in the original edit. The CGI team then used a scan of the Lexus and created an animated sequence in Maya duplicating the precise movements of the car from the original edit, allowing them to reproduce the camera tracking data they lacked, due to not being involved in Vogel's original, Prague-based live-action production. That CGI "template" helped the CGI team track Maier's new road plate, to ensure it matched the vehicle's



movement from the original edit. That gave Murphy a new, snow-covered road plate that moved in perfect sync with the Lexus. Having determined what tires were on the vehicle in the live-action footage, Hall's team built four new tires for the car, tracked those wheels to the car, built a layer of CGI snow to fill the treads, and passed that layer along to Murphy. The CGI team was also responsible for creating the snow that flies from the passing car. "Because the agency wanted to get a sense of this car cutting through these environments," Hall said, "we had some artistic say in how the snow was generated and the way it kicked off. For that reason, it was probably a bit more dramatic than it would have been if it had been shot that way in reality." A52's CGI team uses Mental Ray for rendering.

With the new environment tracked, the wheels of the car interacting with the snow and snow particles coming off the wheels, Murphy used Inferno to improve the way the vehicle – and the snow spray – stood-out from the background. How? "By tweaking the grade, color-correcting and exploring until we found the right look," he summarized. "We also made the snow spray coming off the tires a little bit

lighter in color than the snow on the ground."

Perfectionists to the end, Murphy described a few other touches his team added to the finished spot. "The spot looks in many ways like a pure mirror effect, but we wanted it to feel like the shots with and without snow were not exact duplicates," he said. "So, we did little things like change the sky slightly and turn the car's logos around so they always read properly."

Along with Jack Epstein, the agency's campaign team also includes executive creative director Chris Graves, group creative director/copywriter Jon Pearce and group creative director/art director James Dalthorp. The team for Paranoid Projects: Tool included executive producers Phillip Detchmendy and Claude Letessier, head of production Amy DeLossa and line producer Kati Haberstock. Alex Lamarque served as director of photography. Company 3 Santa Monica's colorist for the project was Stefan Sonnenfeld. In addition to Hal Honigsberg, Chrome's project credits include executive producer Deanne Mehling, producer Cristina Matraccia and assistant editor Tommy Harden. Honigsberg shared sound

design credits with Bob Gremore, who mixed the spot at Juice in Santa Monica.

A52's team also included executive producer Mark Tobin and CGI artists Dan Gutierrez, Christopher Janney, Branden Perlow and Max Ulichney.

#### ABOUT A52

Established in 1997 as a home for the very latest high-end photo-real visual effects technologies and the industry's most innovative and talented graphic design artists, West Hollywood visual effects and design company A52 creates award-winning imagery for the world's most visually ambitious commercial and television projects. The company's work has been earned AICP Show recognition for six consecutive years along with recent "Outstanding Commercial" Emmy, Andy, BDA, Belding, Clio, British Design and Art Direction, International Monitor, International Automotive Advertising, London International Advertising, One Show and PROMAX awards. For more information, please call Mark Tobin at 310.385.0851 or visit [www.A52.com](http://www.A52.com).

ARTICLE BY : BEN BARNES





# masterclass

Over the course of the next few months we will be dealing in depth with various texturing techniques that will relate to numerous topics ranging from a low poly character template and scene to a high resolution skin texture aimed at replicating the human head. The tutorials are intended to show how texturing principals can be modified and adapted to a variety of different approaches and software packages and will detail specific methods particular to each.



## 01 MAPPING & UNWRAPPING A HEAD January 06

Covering the principals involved in preparing a mesh for texturing. Here we will deal with how to go about mapping the complex geometry of a human head using a guide template and the ways in which we can check the integrity of the mapping co-ordinates. After this we will go on to tackle the Unwrapping stage in which the fully mapped mesh is then flattened into a wireframe template and exported into Photoshop ready for the painting phase.



## 02 TEXTURING A HUMAN HEAD February & March 06

Beginning with the wireframe guide exported from the mapping section. Here we will cover the numerous stages concerned with painting human skin and the levels of detail required to texture a face. The entire map will be hand painted from scratch showing you all the techniques you need to know in order to go on and make your own version.



## 03 TEXTURING A SCENE 01 April & May 06

We will be using some of the techniques outlined in previous editions to texture a scene to house our character. We shall keep the geometry simple so as to ensure its compatability with the character and real time rendering and focus on adding the illusion of detail where none exists as well as integrating lighting effects into the texture to add atmosphere to the scene.



## 04 LOW POLY CHARACTER TEXTURING June & July 06

Describing the ways in which a character suitable for real time rendering can be textured using a single template. During the course of the tutorial we will outline approaches to painting skin, cloth and armour as well as details such as tattoos. We will also show how this form of texturing can be used to describe a level of detail that is not apparent on the mesh and suggest geometry where there is none which is certainly a valuable factor when rendering in a game environment.



masterclass

# PREPARING OUR MODEL FOR TEXTURING

# MAPPING & UNWRAPPING

Over the course of the next few months we will be dealing in depth with various texturing techniques that will relate to numerous topics ranging from a low poly character template and scene to a high resolution skin texture aimed at replicating the human head. The tutorials are intended to show how texturing principals can be modified and adapted to a variety of different approaches and will detail specific methods particular to each.

Mapping / Unwrapping - This tutorial will cover the principals invoved in preparing a mesh for texturing. In it we will deal with how to go about mapping the complex geometry of a human head using a guide template and the ways in which we can check the integrity of the mapping co-ordinates. After this we will go on to tackle the Unwrapping stage in which the fully mapped mesh is then flattened into a wireframe template and exported into Photoshop ready for the painting phase.



Over the course of the following few editions we will be detailing techniques for texturing a model of a human head and be concerned with the mapping as well as the painting stages that will completely cover all of the important aspects involved in the process.

Assuming that you have a finished model it is time to consider preparing it for texturing. Before we can begin painting we need to have a template necessary as a guide which will enable us to know where to place our characters features and put in details such as wrinkles and facial hair. This guide can be taken from our 3D package and exported as a wireframe which not only serves as our template but also represents the mapping co-ordinates of our head. As this shall determine how closely our final model mirrors the painted texture it is important that the mapping is as accurate as possible. There are a number of ways in which we can go about mapping our geometry and the method we choose is dependant on the shape of the object. For example simple primitives such as cylinders and boxes generate their own mapping co-ordinates but in the case of our head which is a "hand made" polygonal object, it does not have any mapping co-ordinates as yet. Therefore we need to apply a UVW Map Modifier which will provide our co-ordinates and the basis for our template. Because of the complex shape of the human head with its numerous undulations and curvature it is difficult to find an ideal mapping solution but I find the best approach in this case is to use Cylindrical Mapping (1). This basically involves wrapping a cylinder around our model and projecting the map onto the surface and the reason this particular method works is evident when we look at the overall shape of our head from above (2). Although this does not fully follow the contours of the model it does roughly adhere to the shape and give us a semi-accurate starting point at which to

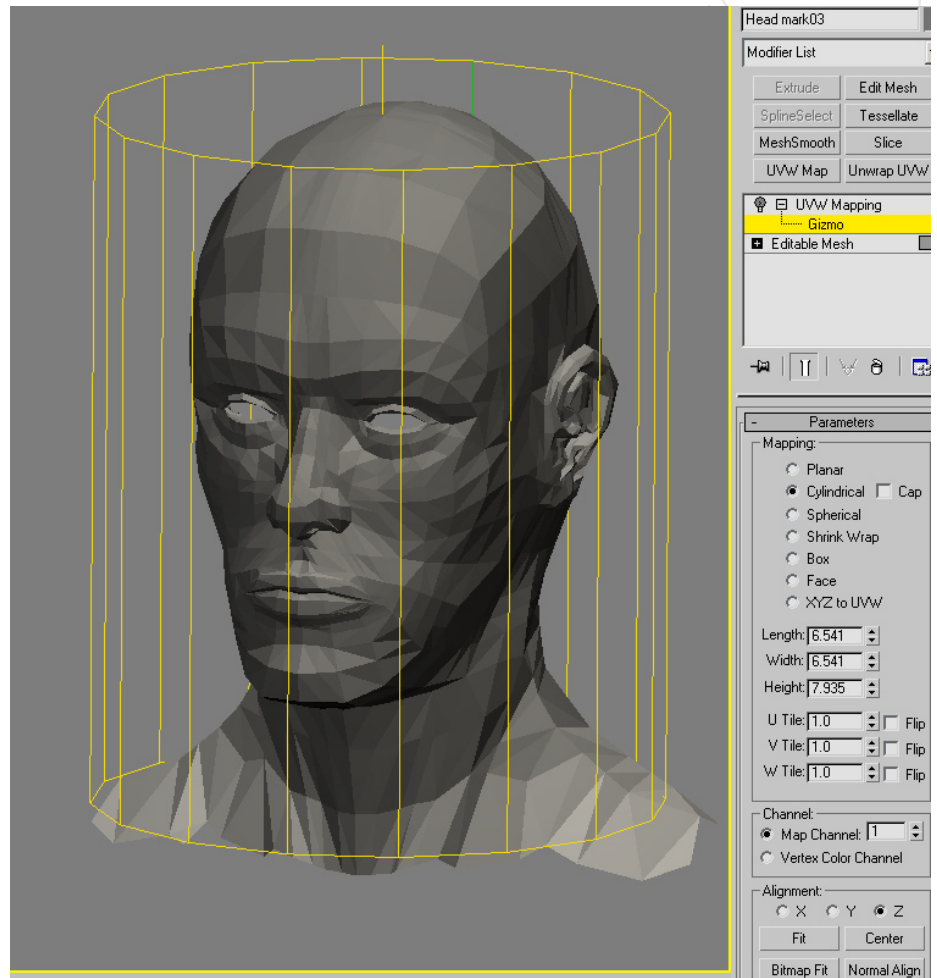


fig 1

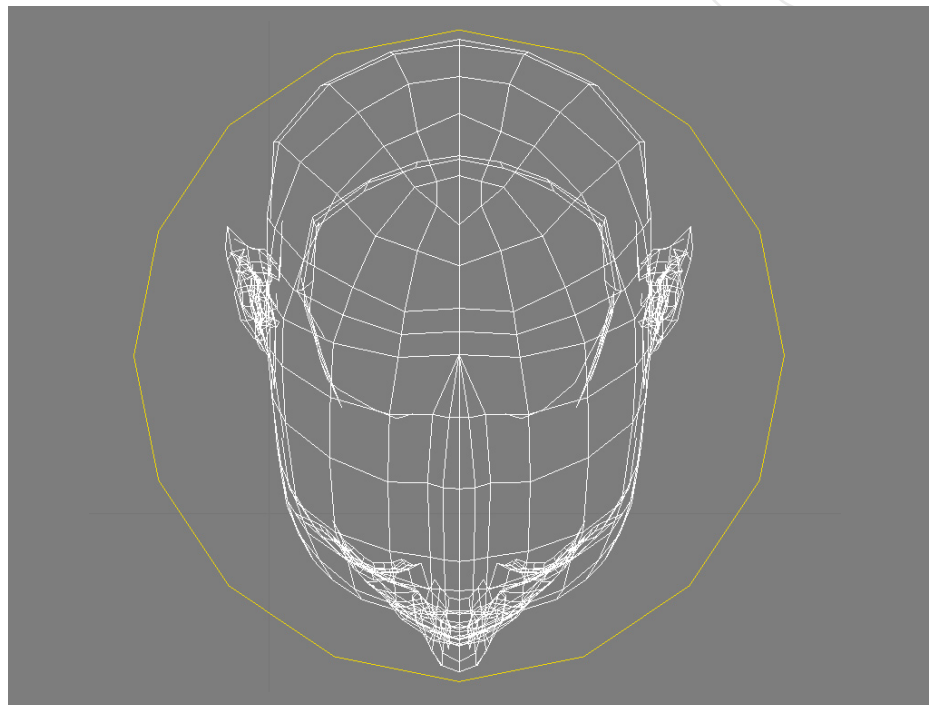


fig 2

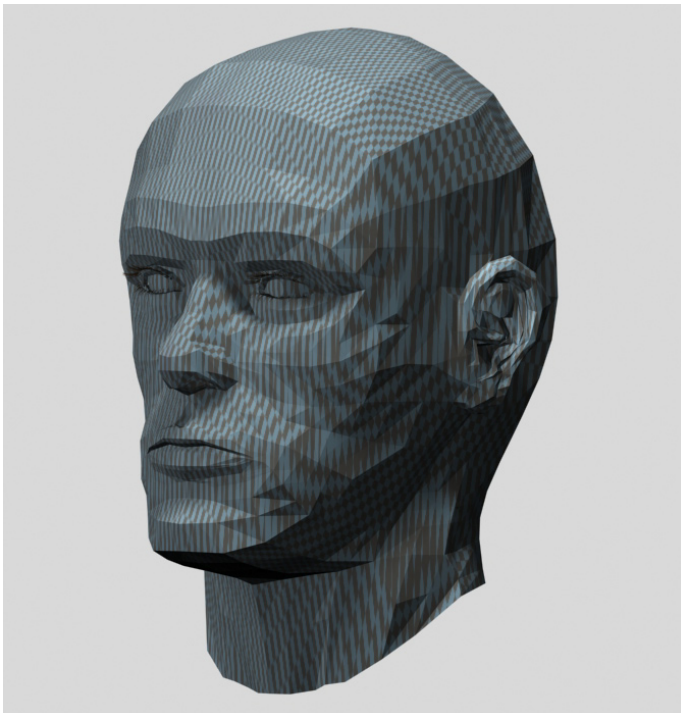


fig 3

begin manipulating our mapping. In order to visualise how this UVW modifier has helped our cause it is important that we can see a texture on the geometry which will reflect the extent of the maps distortion. A useful way of doing this is to apply a checker map in the diffuse channel which will reveal any inaccuracies and noticeable problems. The objective is to try and keep the squares parallel and to a consistent scale which will result in a more accurate translation of our texture onto the geometry. In the following diagrams we can see the immediate improvements after a Cylindrical map has been applied. (3 & 4 ). Even though it still requires tweaking we can see how the squares are now more consistent and resemble the checker pattern more closely than before. Areas around the nose and top of the head do demonstrate a level of distortion but the parts of the face that show the most detail such as the eyes and lips are almost there.

In order to avoid any stretching of the texture we should now begin to fix some of the initial problems which were evident on the top of

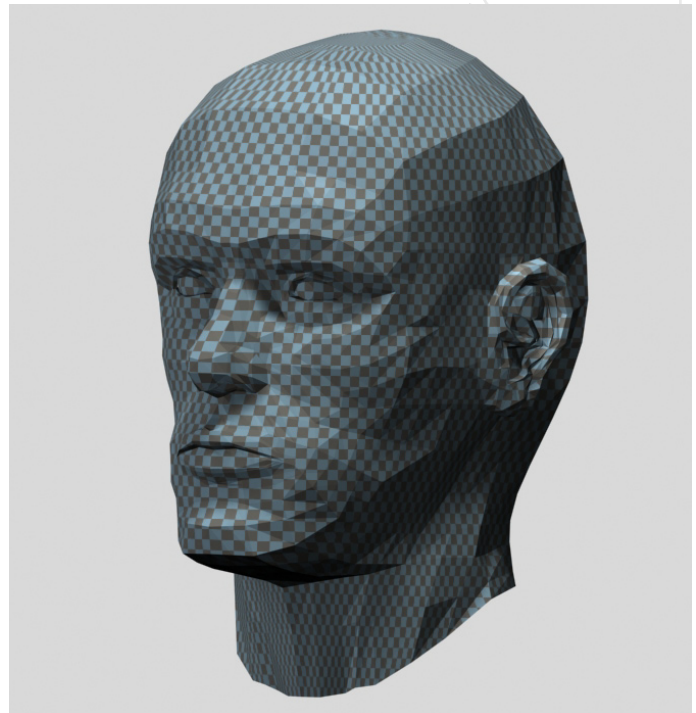


fig 4

the head and sides of the nose. To do this we need to be able to edit the UVW co-ordinates which is made possible by applying a UVW Unwrap modifier. This allows us to view the UVW faces and vertices of our model flattened out in the 2D space of our texture map which correspond to the structure of the model. From within this modifier we can access a dialogue box that gives us control over editing these sub-object selections using the standard transform tools and view the results in real time via the viewport windows. Therefore by manipulating the verts we can begin to tidy up our mapping and regulate the checker pattern to reduce any distortion. We can see from the original mapping that the squares are stretched along the sides of the nose as these faces were almost at right angles to cylinder used to project our texture so we need to select the verts responsible and scale them horizontally. This will result in a more even distribution of our checker guide and mean that the final render will remain more faithful to whatever we paint on our final texture. (5 & 6). Now that the nose has been improved

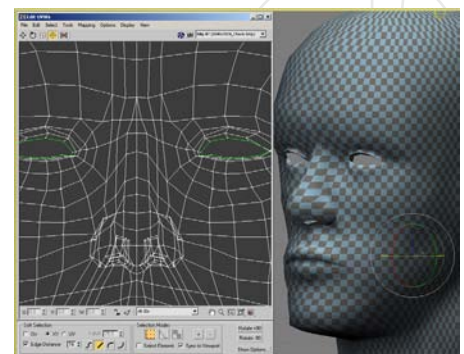


fig 5

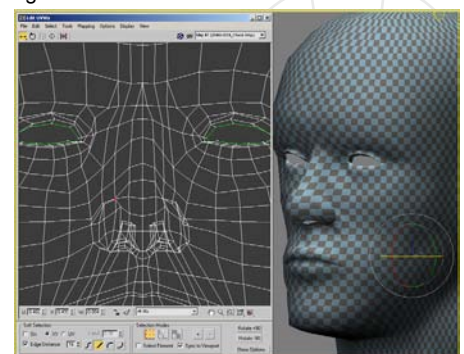


fig 6

we can look at the eyelids which also contain areas of distortion and overlapping faces. (7) The best way to solve this is to use the Relax tool which gives us control over the tension between the vertices and so in this case if we select the group surrounding the eye socket

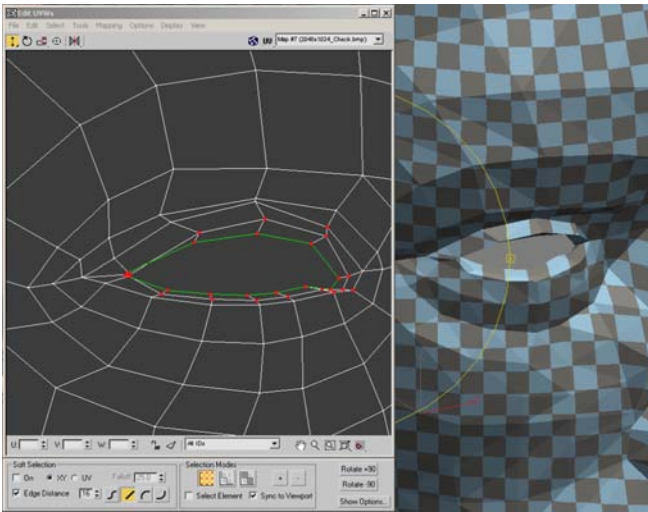


fig 7

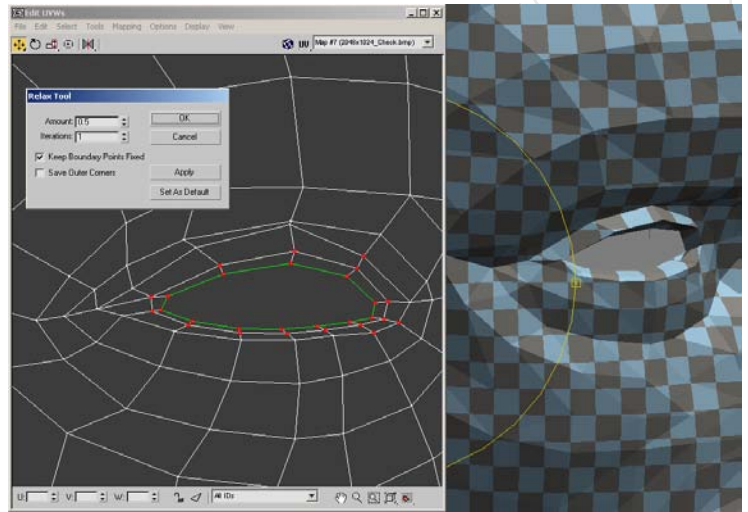


fig 8

and then alter the iterations we can see the faces unravel and undo any overlapping that may have existed thus enabling us to texture all the faces. (8). This is also a method that will be useful to fix problems around the lips and ears and give us a clear view of all the faces. One remaining area that always causes a problem with this type of mapping with respect to spherical shaped models is the top of the geometry where we end up with pinching that dramatically pulls the texture and distorts it. (9) If we were not using detailed textures then this would not necessarily present itself as a problem but as we plan to show evidence of a shaved head we need to ensure the mapping is not too distorted. One way of doing this is to apply a planar map on only a selection of faces across the top of the head which will then give us a much more workable area. The main drawback with this solution is that we now end up with a mesh that is no longer unified and as such will require stitching together in order to help avoid showing any seams on the finished texture (10). We can see from the diagram that the checker map is much more consistent across the scalp but we now have a separate section in the UVW window that ideally needs to be a part of the main mesh. The green lines represent the open edges and the one along the top of the face is where we need to stitch

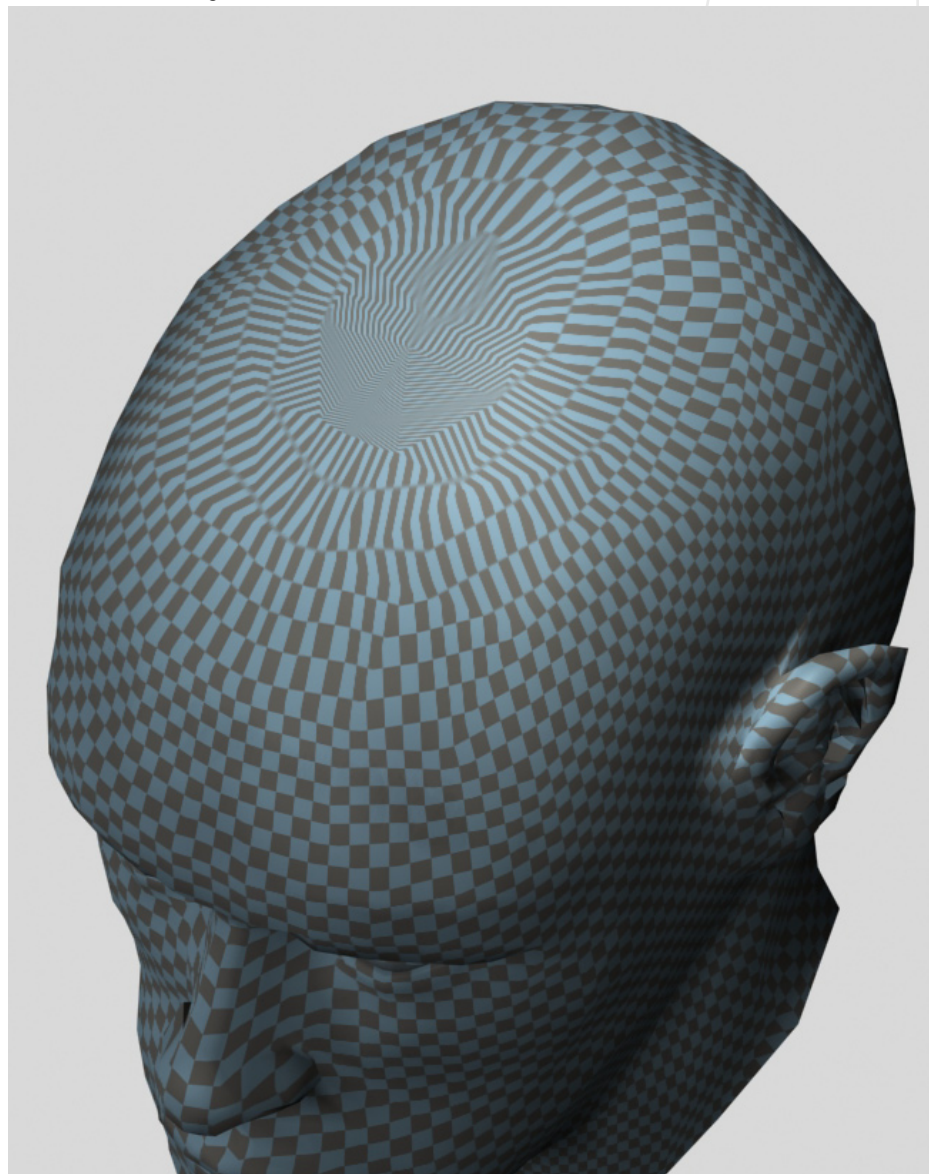


fig 9

up the top of the head but as we can see they do not really correspond at the moment. The next step is to break the central line of vertices through the top of the head and rotate one of the halves so that the verts are more aligned with the corresponding ones on the opposite edge. Then we can begin welding them up and positioning them so that we have a single mesh with as little distortion as possible. (11). There will always be edges that cannot be sewn together when an object is flattened out into two dimensions in much the same way as suits appear as shapes drawn out on a large piece of material before they are tailored. The question to ask oneself when unwrapping is where the most inconspicuous seam would be. In this case for example I have decided that the seam should be at the centre of the back of the head as this is where there is the

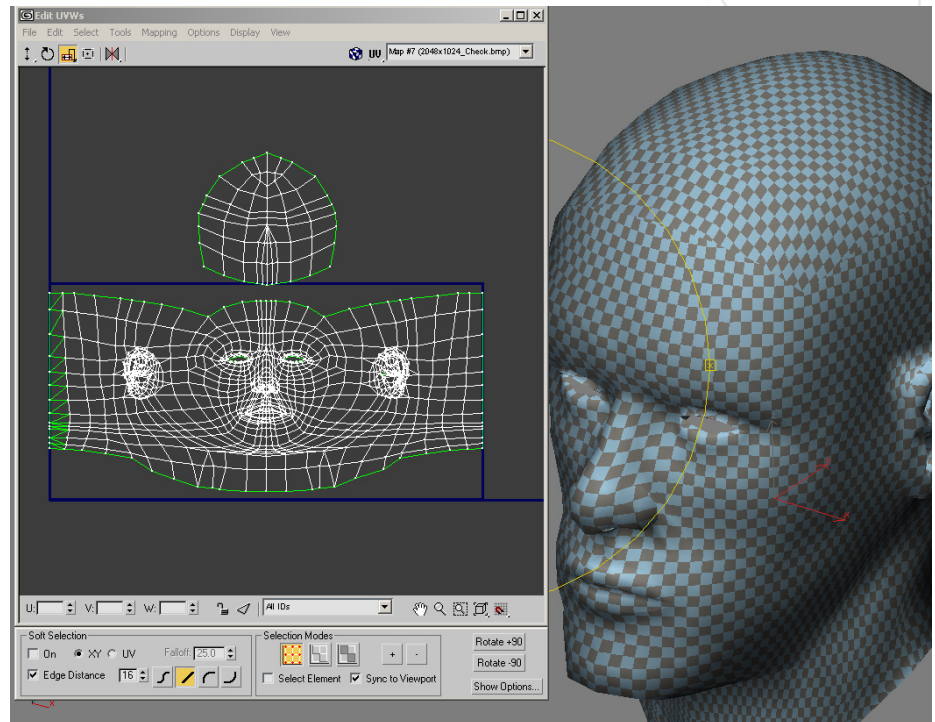


fig 10

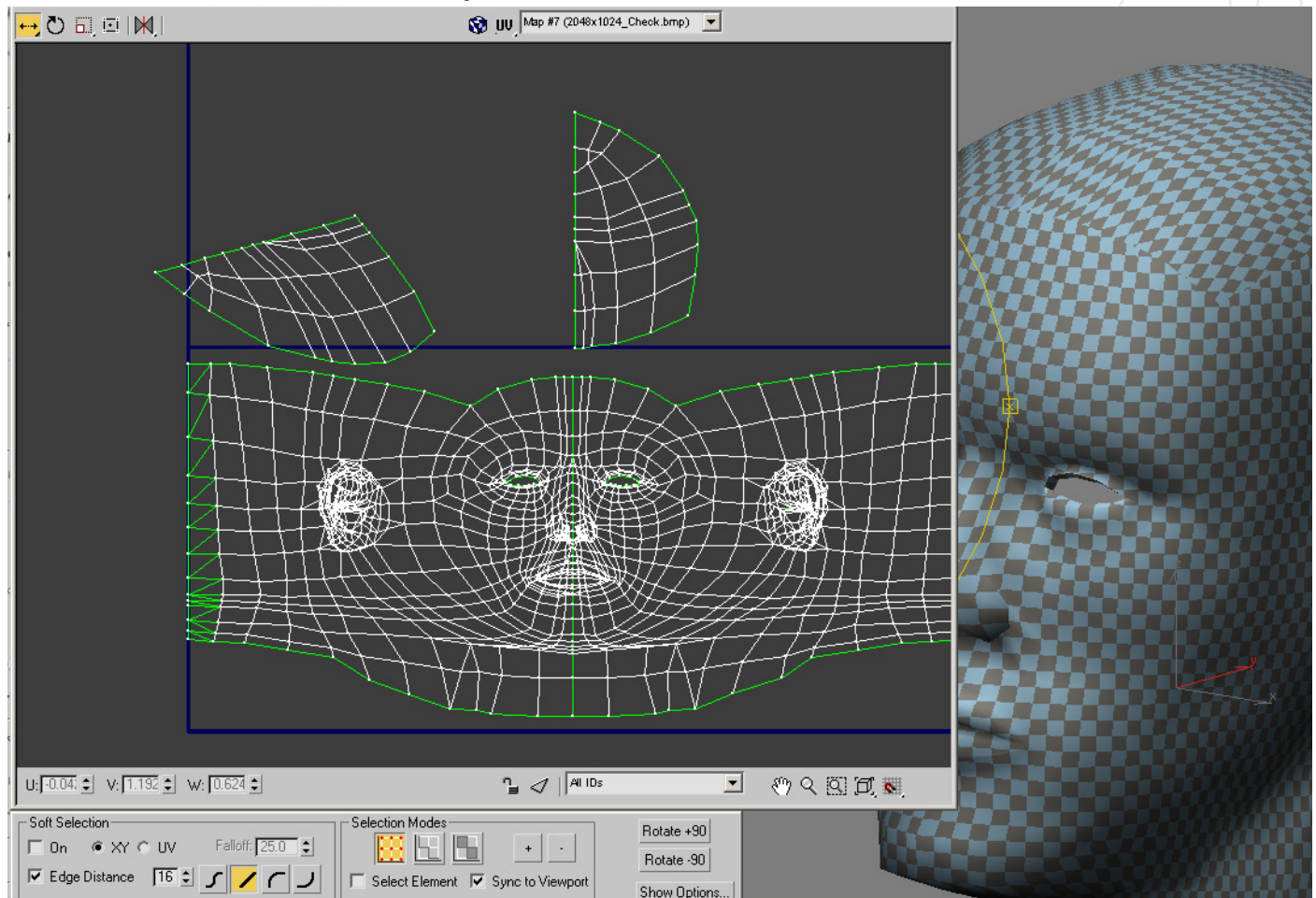


fig 11

least amount of detail as well as being on the opposite side to the focal point of the model. It also means that as there is no split down the middle of the face we do not need worry about seam lines showing across the texture where the colour value of pixels does not match up exactly. This is an important factor to remember when texturing because if edges on the template are not consistent we shall be able to discern the edges on the geometry which is an aspect we wish to avoid. In the case of models that have natural seams and edges such as panels on vehicles it suits the texturing process to actually have the mesh separated thus guaranteeing a clean edge but with organic models and characters it is helpful

to have a continuous surface on which to paint. When the two halves are moved and stitched onto the main mesh we should end up with a template along the lines of (12). A quicker way to do this would be to delete half of the model itself before altering the mapping and then after welding the meshes together mirror the finished half which will also carry the new co-ordinates and then attach the two pieces of geometry together. When we open up the UVW Unwrap window it appears as though we now are left with only half a head as the mapping for both halves of the head occupy the same co-ordinates. In order to rectify this we need to select the faces of one half of our model and then open the UVW Unwrap

window, select all the verts and simply flip the entire selection horizontally. We can then select the whole of the model in the viewport and when we look at the mapping again we see two halves that can now be joined and give us a complete head. This concludes the mapping / unwrapping stage of the tutorial and next month we will begin going through how to paint a convincing skin texture and add in facial details to complete our head.

TUTORIAL BY RICHARD TILBURY

NEXT MONTH: TEXTURING A HUMAN HEAD

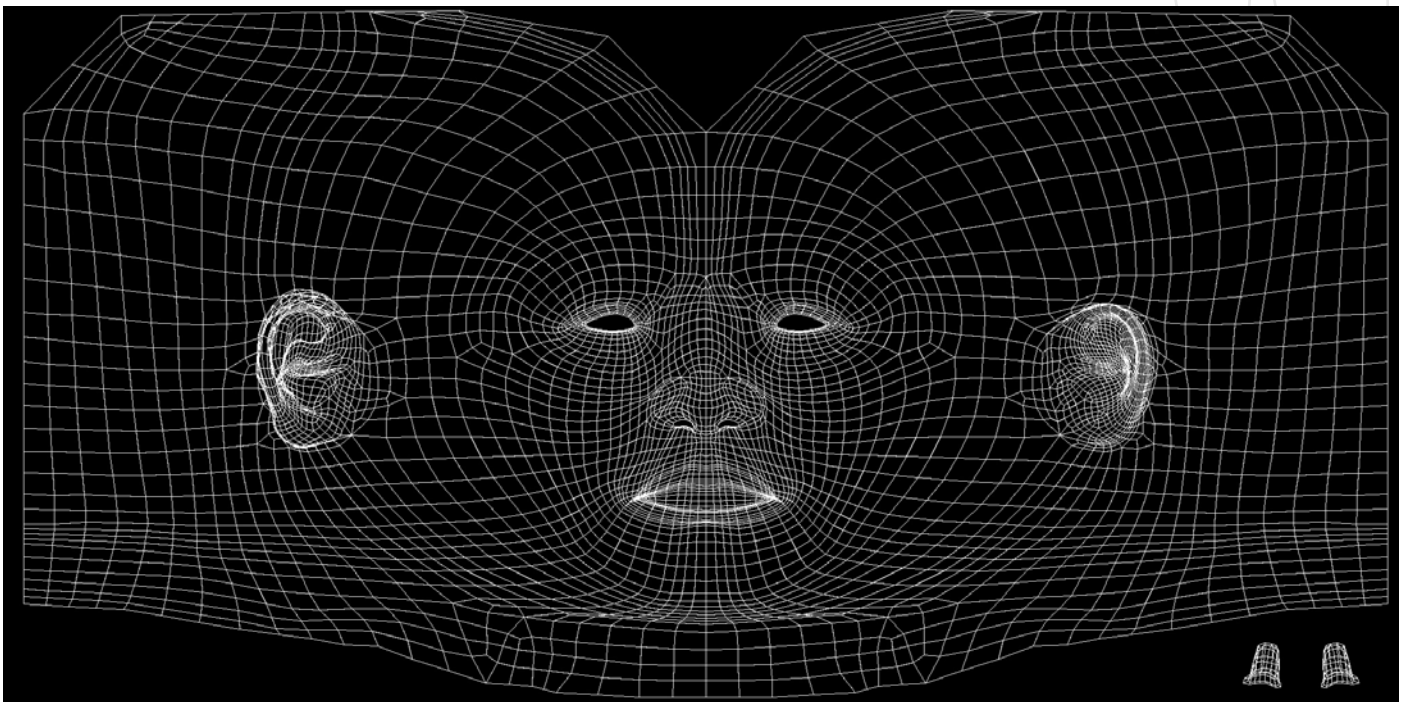


fig 12



## JOAN OF ARC PART 5

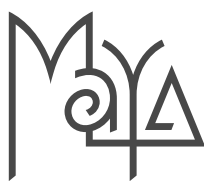
We bring you Part 5 of Michel Roger's famous 'Joan of Arc' tutorial in Maya, Lightwave, C4D & XSI, if you are a Max user and this is new to you the original is free and can be found in French as Michel's site <http://mr2k.3dvf.net/> and in English at [www.3dtotal.com](http://www.3dtotal.com).

### INSPIRING

If there has been one single tutorial that has educated and inspired more budding 3d artists than anything else, this complete step by step project by Michel's must be it. The community is in debt to him and in our october issue we interviewed the man himself! The Tutorials are free to download for 3dcreative customers. For security purposes you will need to email

**[joanofarc5@zoopublishing.com](mailto:joanofarc5@zoopublishing.com)**

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immediately so that any problems can be fixed promptly.



making of



# SANGYENG

BY REBECA PUEBLA

This is a brief "making of" about my last work "Sangyeng". I will show some samples of modeled, as well as the parameters of render, lights and shaders



## Modelling process

I want make a sexy girl with a oriental touch inspired in the "Final Fantasy" game. I love this game and all asian culture.

First, before nothing I always do some sketches about the model. Is not essencial that they are very complicated. I look for references of the oriental actress and models in books, magazines etc. I need a good references of anatomy and others like japanese clothes and I begin to work the model in repose. I use the technique of extrusion of edges, this is the best method to obtain a precise and detailed anatomy, because it allows us to go from the detail to the whole (1, 2 & 3)

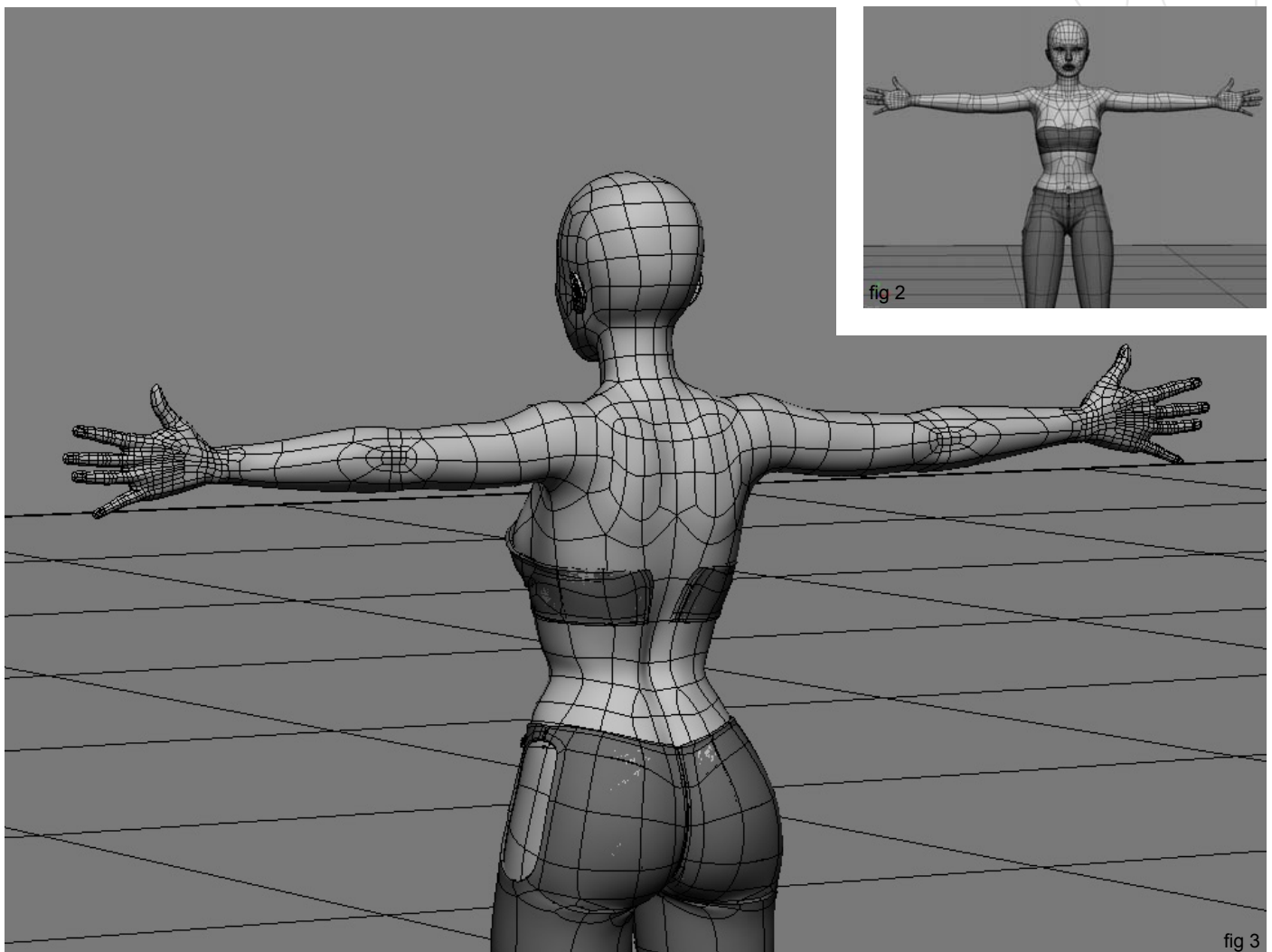
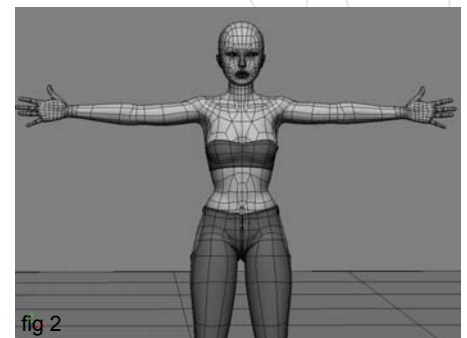
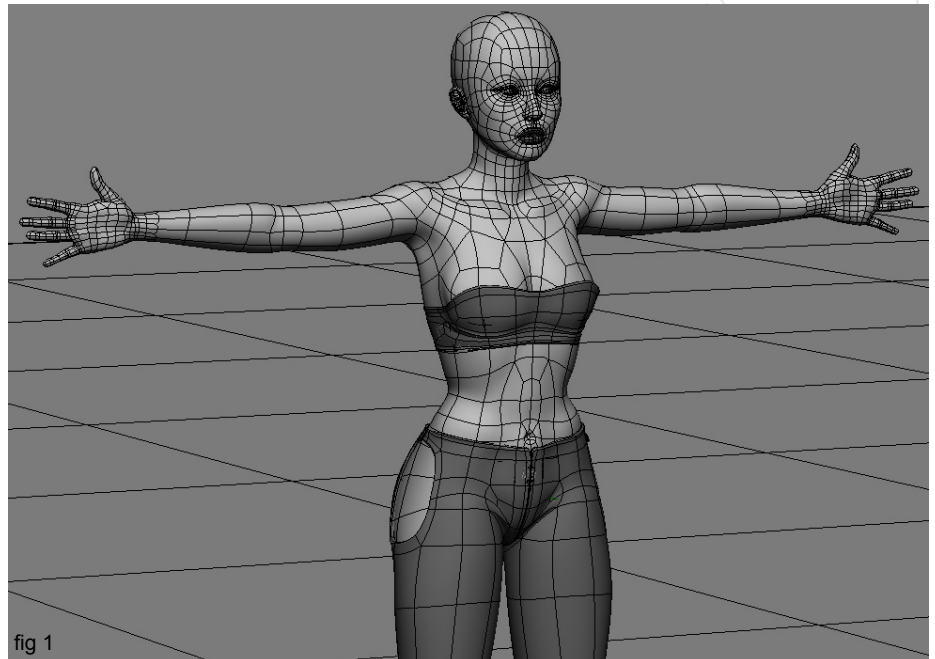




fig 4

Now, more or less I have the model and then I do the setup. I prove different poses until finding what I want. As my image is a static image I usually don't make a setup very elaborated, enough to be able to correct the parts badly deformed.

This is some renders of different poses (4).

I choose this pose and work about it. I make the clothes, I prove the type of hair, I think about the weapon but I don't like it!!! This pose is very unnatural and I need that the girl seems more relaxed, elegant and solemn (5, 6 & 7).

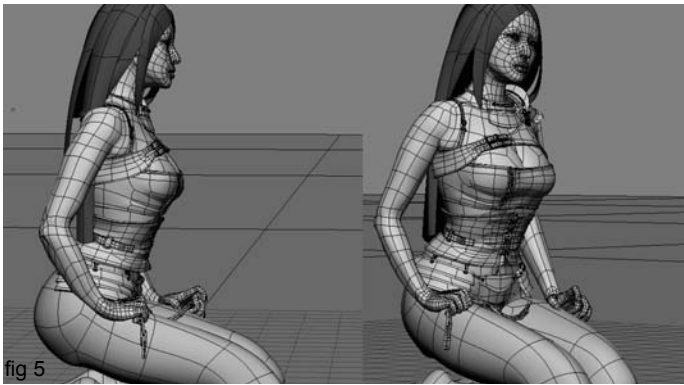


fig 5

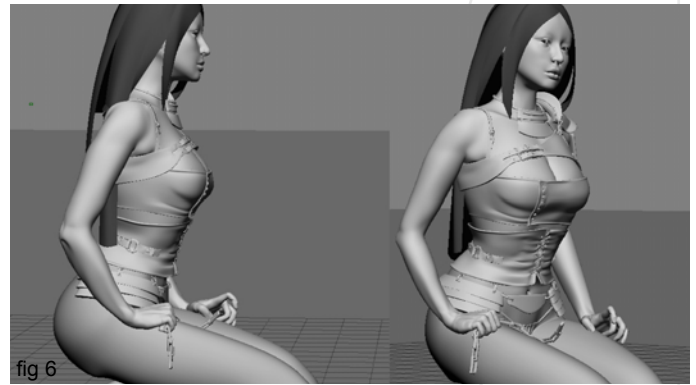


fig 6



fig 7

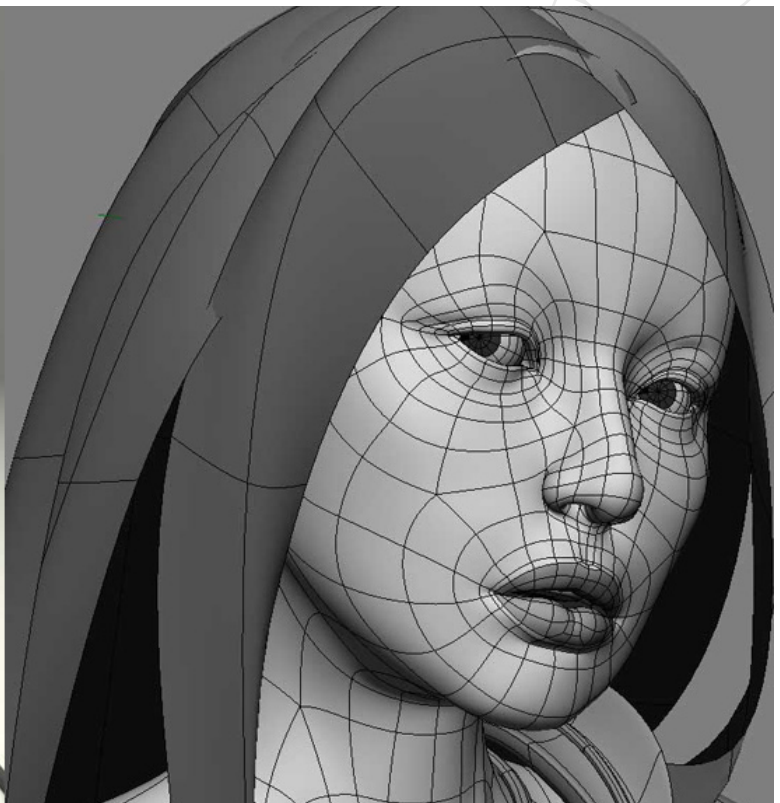




fig 9

I change all model again and this is the result (8, 9 & 10).

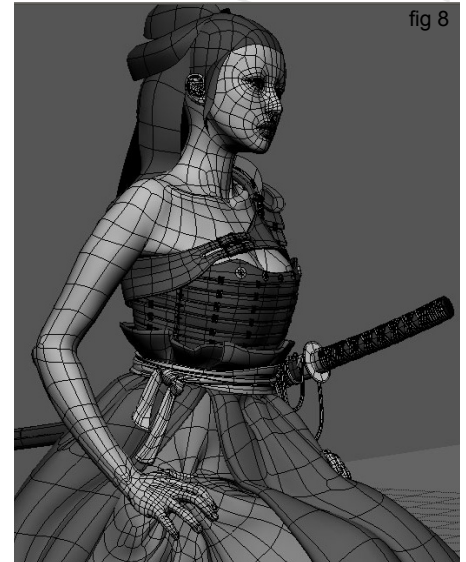


fig 8



fig 10



fig 11

### Textures, illumination and render process

I usually work the render, the illumination and the textures simultaneously, it is better to see all the set but it is not essential. In the illumination I used one constant sphere or hemisphere, with the normal towards inside, or a image for the enviroment is good too. After one area light for to create shadows or to illuminate of powerful illumination, other lights for the specular of different objects and another back to the model. Now, I began to work the textures. We will construct in potoshop the diffusse, specular and bump maps and we will be proving the textures and the lights. I want to make a very big tatoo (11) and I see some

models of internet very interesting. Most of the tattoos are little saturated but concretely the tattoo's yakuza are very luminous and of a strong color and that it is the effect that I want in the arm of "Sanyeng" (12). These are some details of the texture difuse and tattoo's comparative (13).

fig 12



First tests of render with textures: (14)



fig 13



fig 14

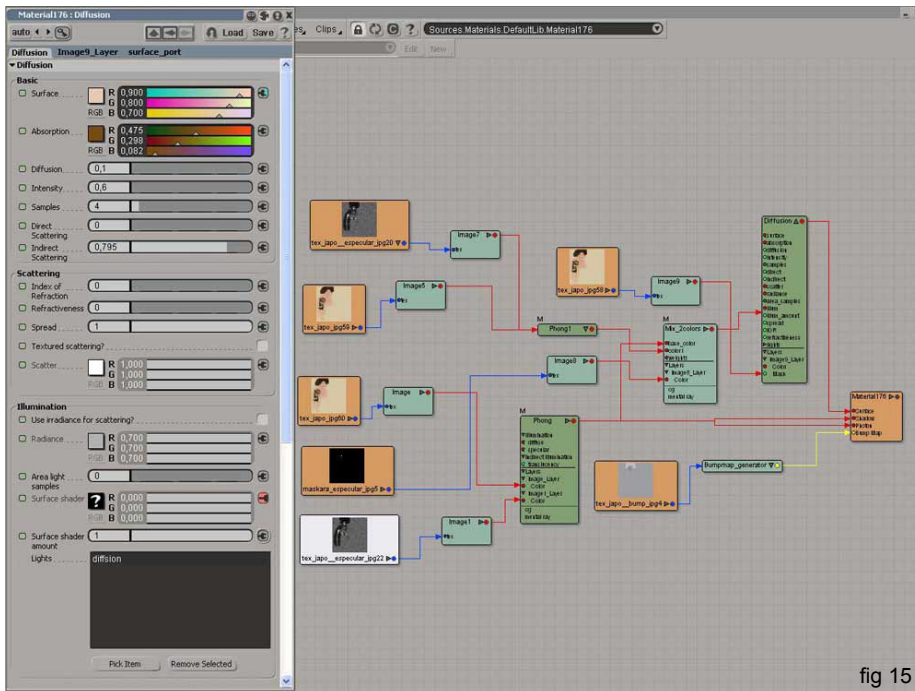


fig 15

The hair and the eyelashes are done with opacity maps. I saw a lot of photos of oriental girls and curiously their hair seems very opaque. I like this aspect, it is very pictorial.

Well, the model is not bad but I think that it needs a little of SSS, more luminosity although not too much. These are the parameters of render tree and the SSS (15).

After many changes and tests this is the final result of "Sanyeng" (16)



fig 16



tutorial

OCTOBER:

Part 1: Modeling the Car Body pt 1

NOVEMBER:

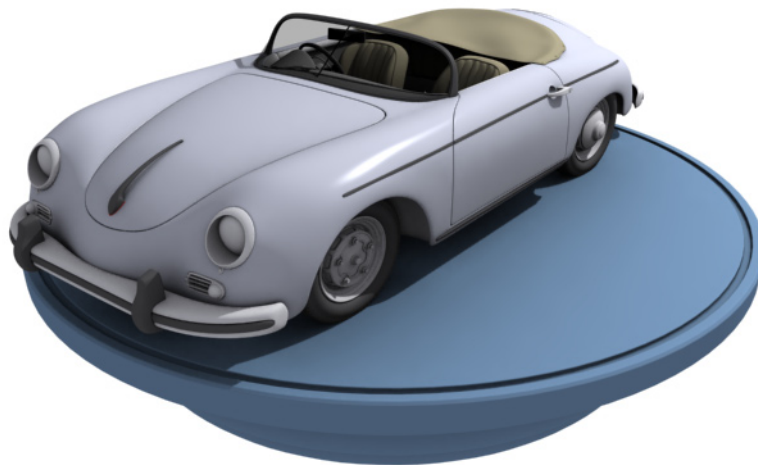
Part 2 : Modeling the Car Body pt 2

LAST MONTH:

Part 3 : Modeling the Accessories

THIS ISSUE:

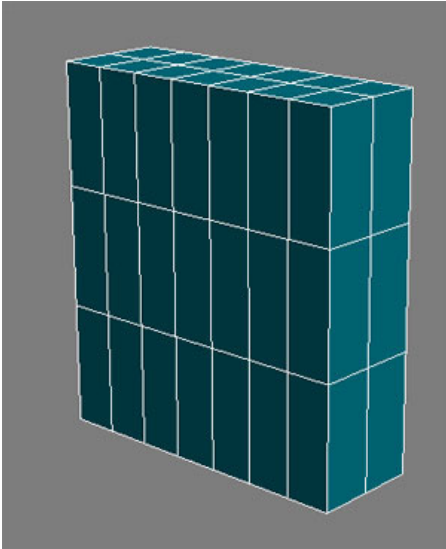
Part 4 : Modeling the Interior, & Wheels



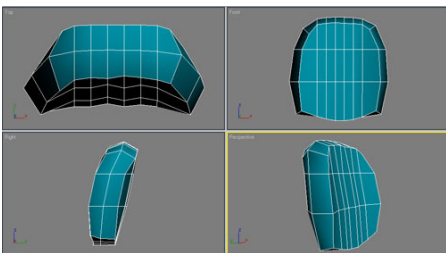
# THE PORSCHE 356

BY KARABO LEGWAILA

01 Let's have some fun and start on the interior. We shall start with a chair. In the front viewport, create a box with 3 length, 7 width and 2 height segs.



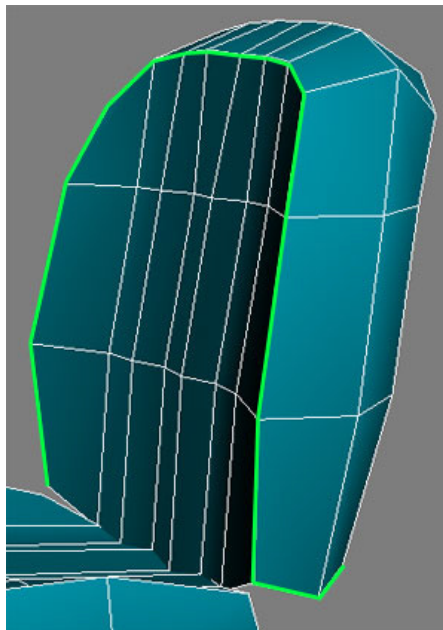
02 Now we have to shape it a little. Move vertices around and sculpt the basic shape of the seat back cushion. Do not make it perfectly symmetrical because that's unrealistic.



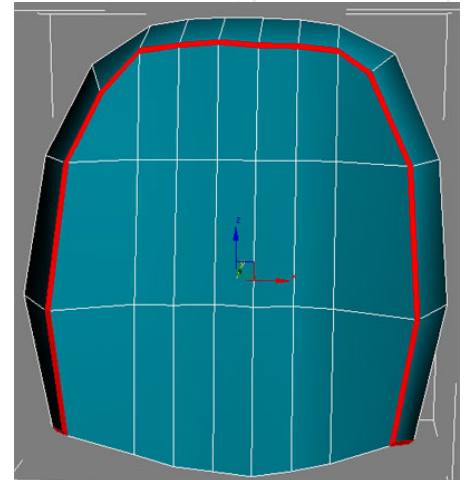
03 Hold down shift and drag the geometry to duplicate it. Rotate the duplicate into the position of the bottom seat cushion.



04 Leave this duplicate for now and go back to the original geometry. Select the edges shown in green and chamfer them by 0.8 or so. Make sure you DO NOT deselect the currently selected edges because we will need them in a bit and it will be a pain in the a\$\$ to have to go through and select them all again.



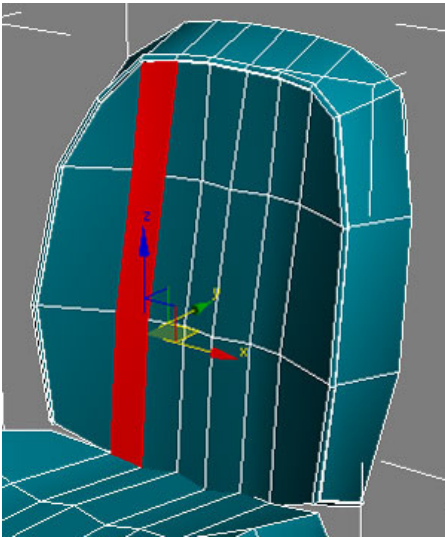
05 Go into polygon mode and select the thin line of polygons created by the chamfer (shown in red) and extrude them outwards by about 0.8. This will form a thin ridge of polys. Adjust if necessary to get the shape right.



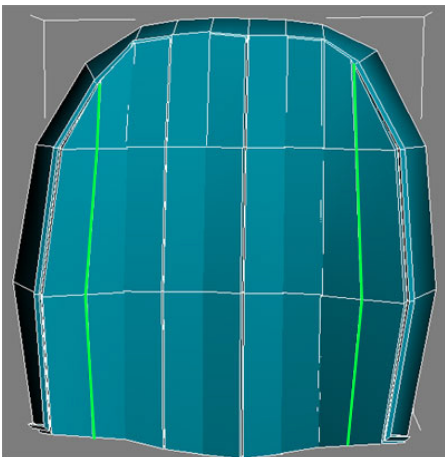
06 Now go back into edge mode and those edges from before should still be selected. If not, reselect them. Chamfer those edges by 0.05 and when you smooth the geometry, there should be a nice ridge around the cushion as shown. So you basically do a double chamfer here.



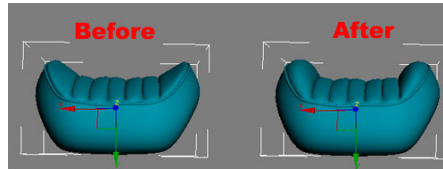
07 Now let's do the cushion ridges. You are going to have to do the ridges one by one unfortunately. Select a column of polys as shown and extrude it by 2.5 or whatever looks good to you. Move to the next column and repeat. Don't forget the two wider ridges on either side. There might be a little overlapping geometry here and there but that's ok because it will look ok when smoothed. When you are done, smooth it and see how it looks. Adjust if necessary.



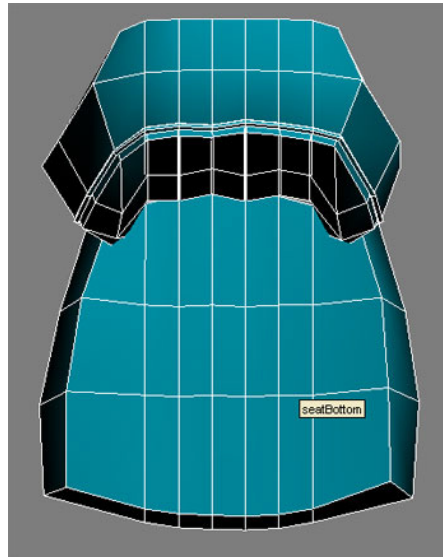
08 Well it looks good but the sides look like they need to bulge out more so make the cuts shown in green. Now move the edges outwards to give more of a bulge.



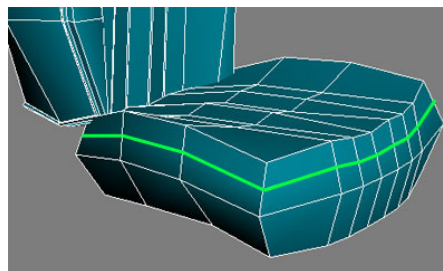
09 This picture shows how the chair looks before and after the bulge has been increased.



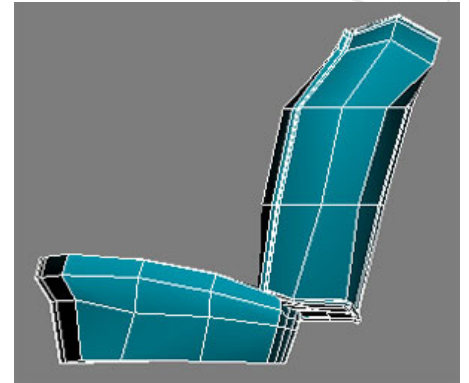
10 OK, let's move onto the bottom part of the seat now. The seat bottom has a slightly different shape than the other cushion. Reshape it to be something like shown in the picture.



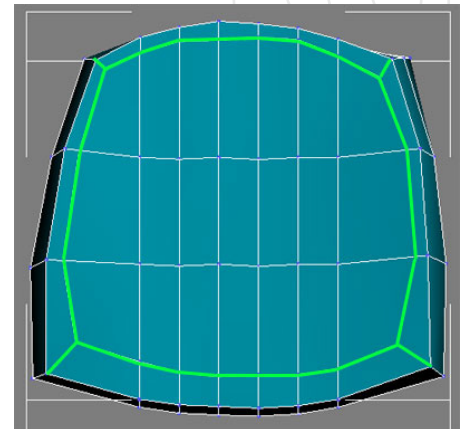
11 We need more edges so cut in the green edges shown.



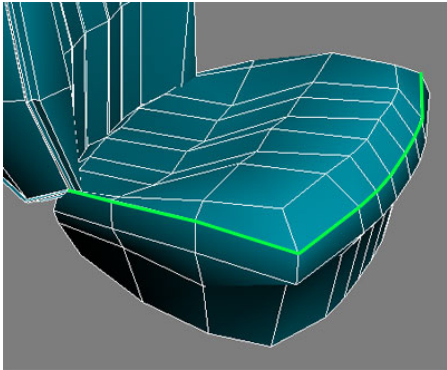
12 Now reshape the cushion to look something like the picture. Add more edges if you feel the need.



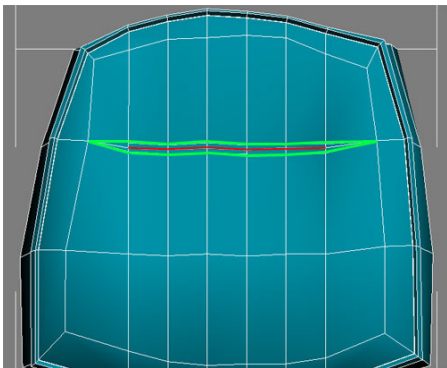
13 From the top, make the cuts shown.



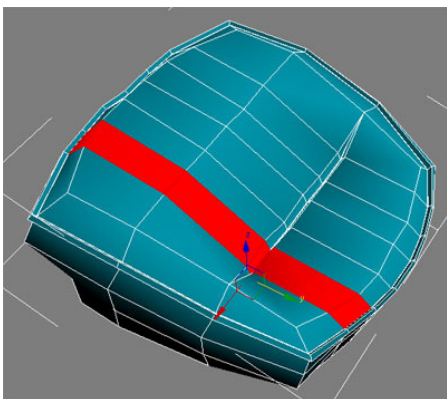
14 Now adjust edges and verts to give the top of the cushion a nice bulge. Now select the edges shown in green all around the cushion and chamfer them by 0.8 or so like we did on the other cushion. Make sure you DO NOT deselect the edges. Go into poly mode select the thin row of edges between the chamfered edges and extrude them out then go back to edge mode and chamfer the selected edges by 0.05 just like we did for the other cushion.



15 Make the cuts shown in green and then select the red edges and move them downwards to make a crease in the cushion. Chamfer the edges you just moved down by 0.2 or so.



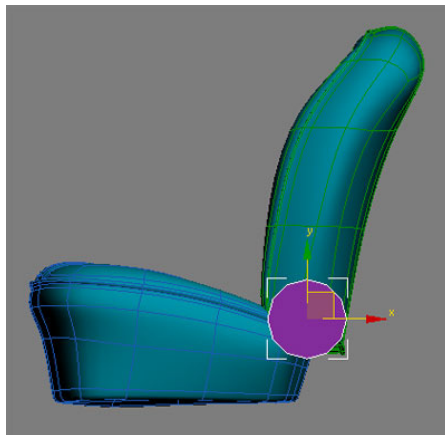
16 Now let's do the ridges. Once again, select the rows one by one and extrude them.



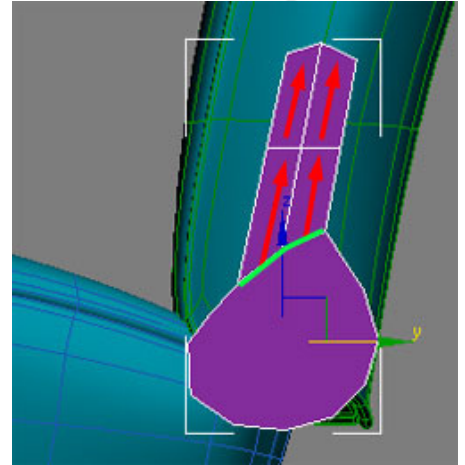
17 The two cushions smoothed should look like the picture at this point.



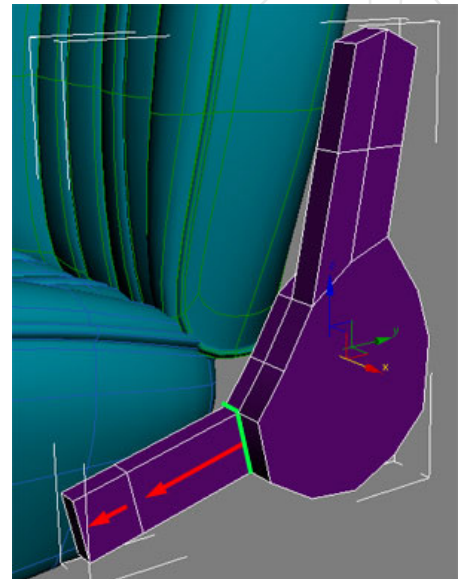
18 The chairs have a metal brace connect to either side of them so that's the next thing we'll tackle. Create a cylinder as shown in the side viewport



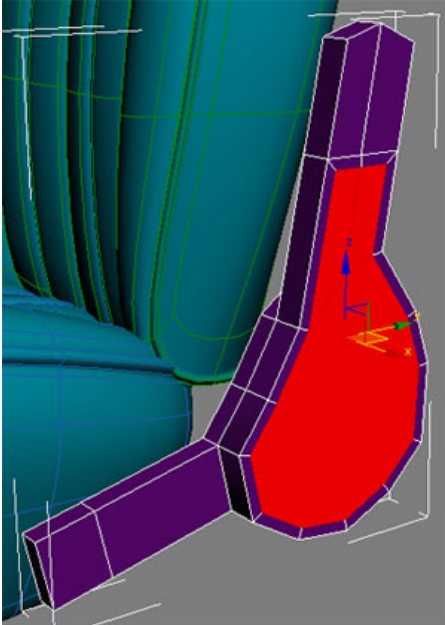
19 Shape it as shown and then extrude the two polys upwards as shown.



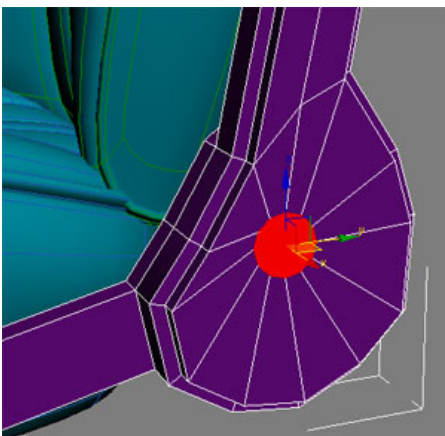
20 Extrude the poly shown in the direction of the red arrows.



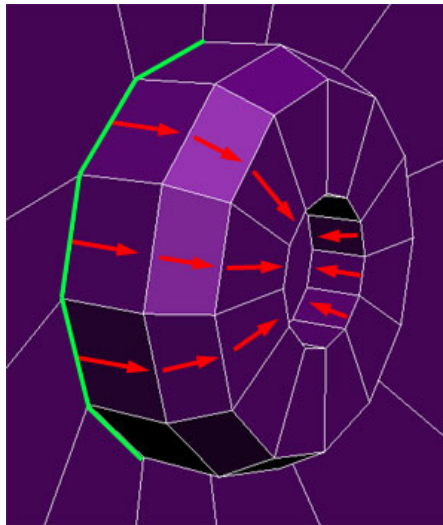
21 Select the polys and inset them as shown. Extrude them outwards by about 1 or so.



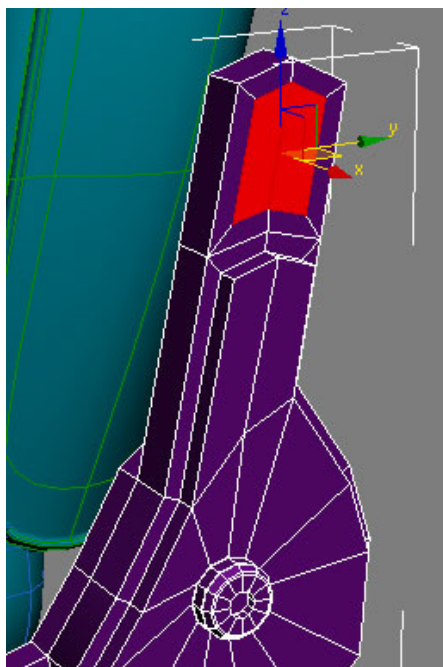
22 Do another inset and then arrange the vertices to form a circle. (Tip: create a 12-sided n-gon and place it in front of the geometry as a guide for where to place vertices to make a perfect circle.)



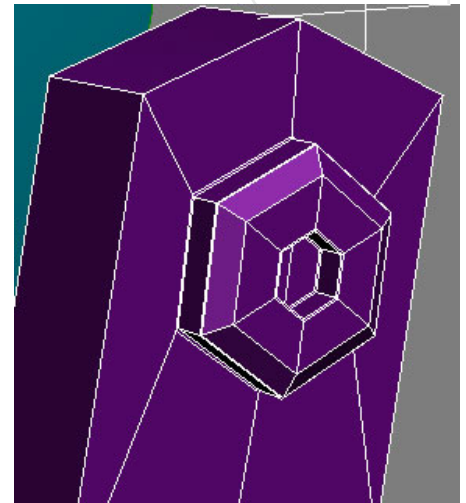
23 Do a few extrudes and insets to create this circular bolt. Do some chamfers to get some nice sharp edges.



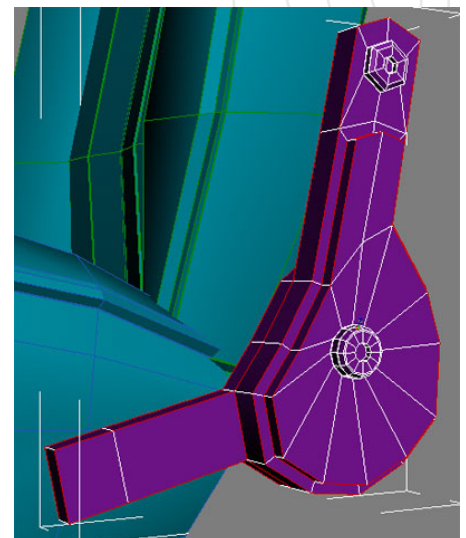
24 Select the polys shown and inset.



25 Arrange the vertices into a hexagonal shape and then do some extrudes and insets to make another bolt. Chamfer away to sharpen the edges.



26 Chamfer the edges shown



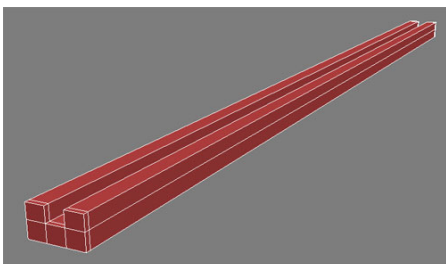
27 Mirror an instance over to the other side of the seat. Up to this point you should have something like the picture. In the case of the seats, you don't want to use a symmetry modifier to create the seat on the other side because the two seats will be exactly the same and this is unrealistic. Instead, mirror the geometry to the other side and then adjust the copy by randomly moving vertices so that there are difference between sides. This will add to the realism of the model.



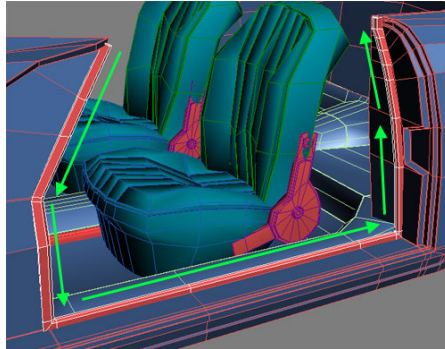
28 This is what the seats look like. Notice how the geometry is not perfectly identical because I adjusted the copy. For added realism, move one chair forward a little so that they are not both at exactly the same place on either side.



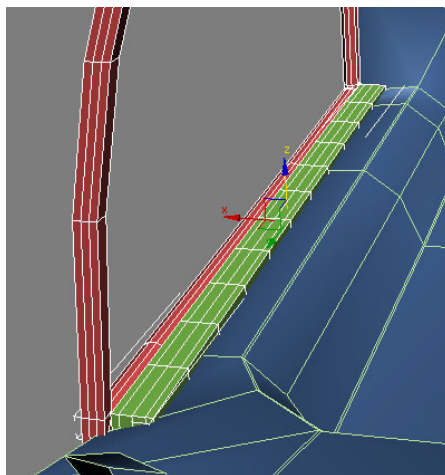
29 The seats are located on rails, we are going to create the rails now. We are going to make them very simple since they won't really be seen up close. Create a long narrow box and do some extrusions to make it look like the picture. That's it! That's all we'll do for the rails. Now just place them under the seats. You can smooth it if you want but it's not necessary.



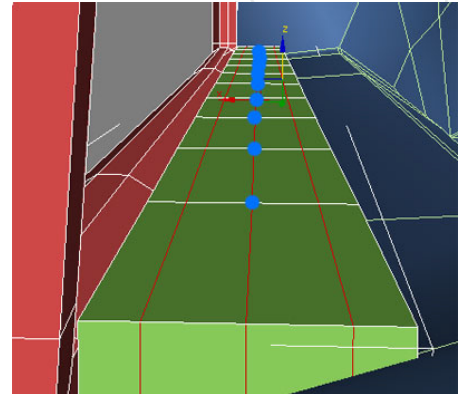
30 Now that the seats are done, let's create the strip of rubber that lines the inside of the door. Simply make a box and extrude it around the inside of the door as shown.



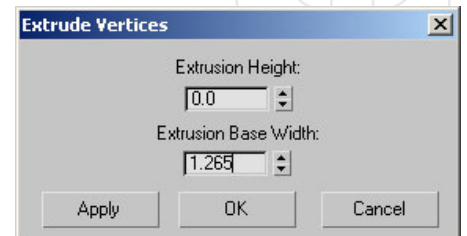
31 There is also a metal strip that runs along the bottom of the door, right next to the rubber. Create a box with 11 length, 4 width and 1 height segment and place it along the bottom edge of the door as shown. You might have to adjust vertices to get it to fit perfectly.



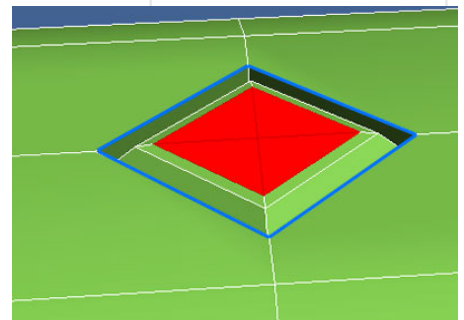
32 Select the three rows of edges shown and move them upwards in the z-direction. Now select the vertices at the intersections of the middle edge loop as shown in blue. There should be 10 of them.



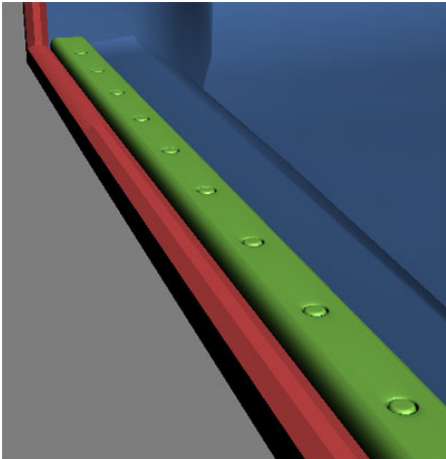
33 We are going to extrude the vertices. This is the first time that we have use the extrude operation on vertices as we usually use them on edges or polygons. It works a little different in the case of vertices. Hit the little button next to the extrude button to bring up the "Extrude Vertices" dialog box. The settings shown are the ones that worked for me, you might have to experiment. Keep the extrusion height at zero, though.



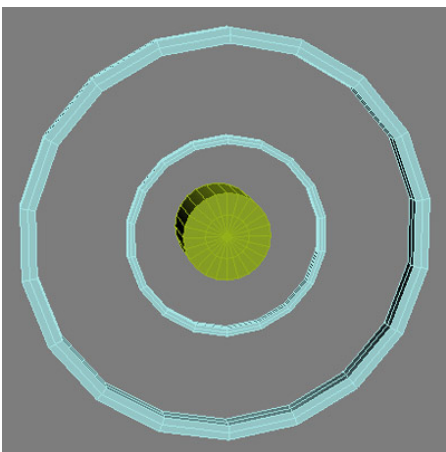
34 Now select the polys created by the vertex extrude and extrude them inwards and then extrude them again outwards to create a screw. Select the edges shown in blue and chamfer them by 0.05. Do that for all the screws.



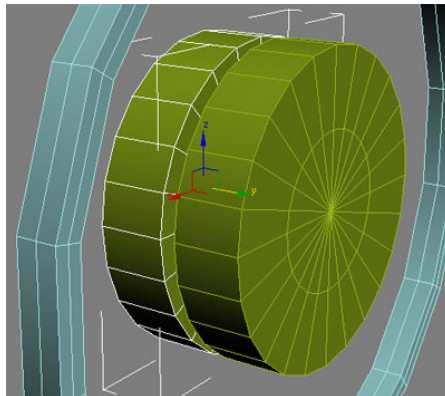
35 When smoothed, it should look something like the picture. Don't forget to add a symmetry modifier.



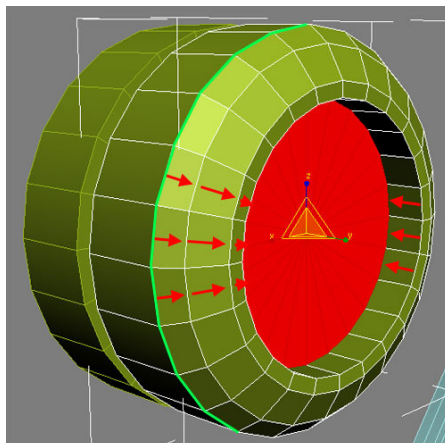
36 Let's make the steering wheel. Create a cylinder in the middle and two tubes around the cylinder as shown. You can use toruses instead of tubes but I prefer the tubes because they work better for me. All three objects have 24 sides so that it makes it easy to connect them.



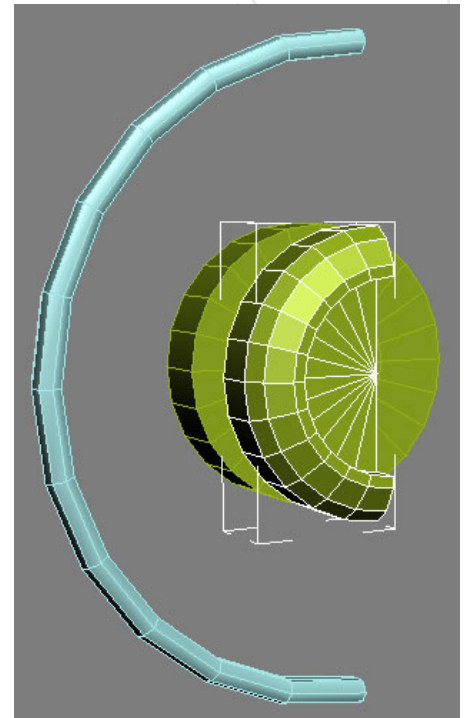
37 OK, let's start with the center cylinder. Scale it down so it's pretty thin and then duplicate it and place the duplicate behind it. To duplicate it, just select it, hold down shift and the drag.



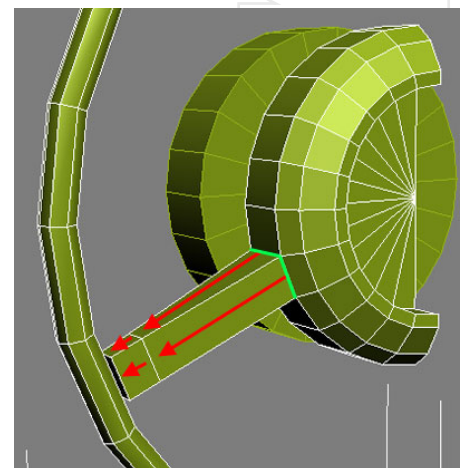
38 Now using some extrudes and insets on the front cylinder, make the shape shown in the picture. There will be a hole in the front of the cylinder and we will use that for the emblem. Delete half of the cylinder. Ok, now leave that for now.



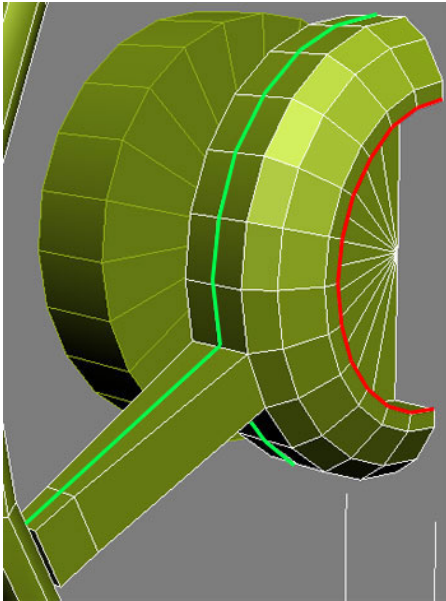
39 Now let's do the inner ring. Round of the front of the ring by pulling the edge loop forwards a little and then delete half of the ring.



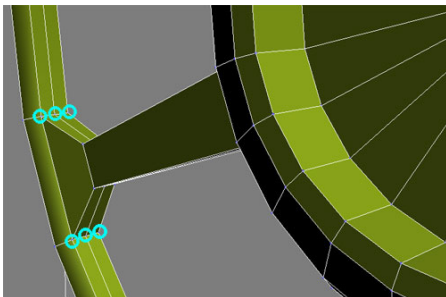
40 Now you have to attach the inner ring to the center cylinder. We have attached two pieces of geometry before so I will not go through that again here. When they are attached, extrude the poly out twice as shown.



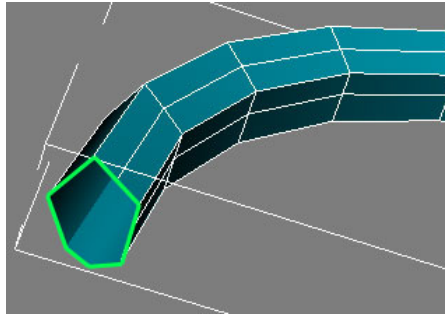
41 Use the connect tool to cut a line of edges around the geometry as shown in green. Chamfer the red edges by 0.2.



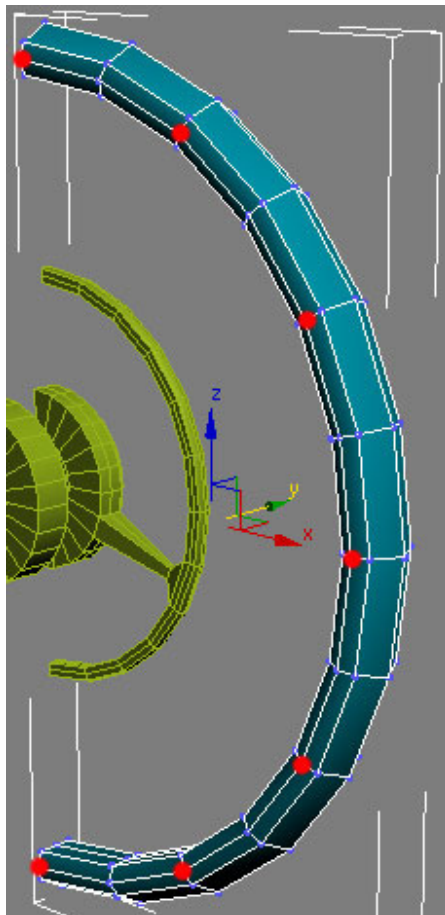
42 Connect the arm to the inner ring by deleting the polygons at the front of the arm and then target welding the six vertices in the blue circles.



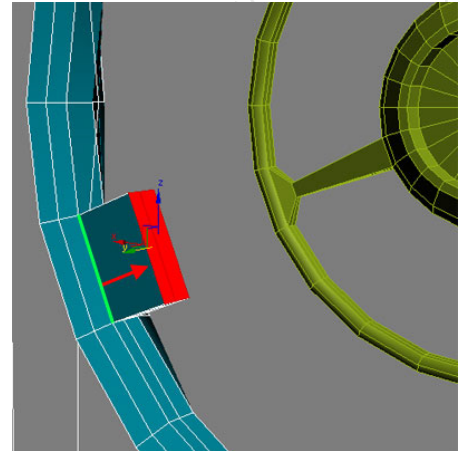
43 Onto the outer ring. You have to shape the outer ring in a certain way but it's a little difficult to explain so I have shown the cross-section of it in the picture. DO NOT cut the ring in half yet, I just did so in order for you to see the cross-section and be able to shape yours the same way. Once you have shaped it then you can delete half of it, but only after you have shaped it.



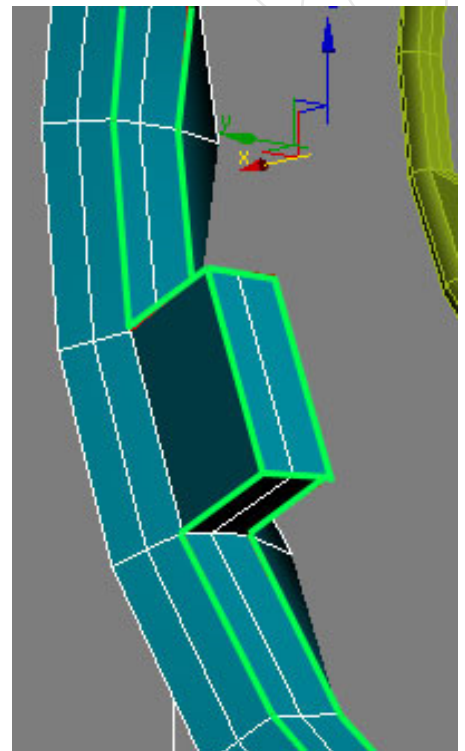
44 On the back side of the outer ring, select every second vertex as shown and move them outwards to create bumps.



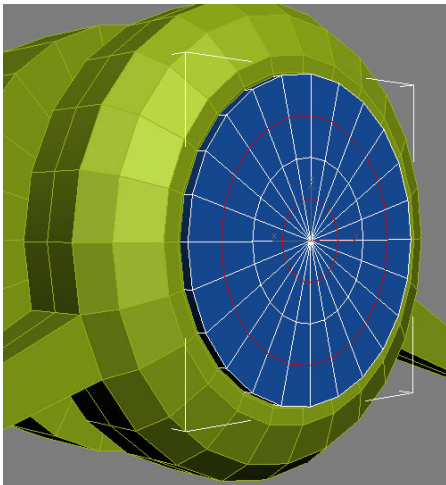
45 Now extrude the two inner polys on the outer ring that line up with the arm we extruded out of the center part of the steering wheel. Just extrude out a small distance like in the picture. Move the polys inwards a little so that the extrusion is at an angle.



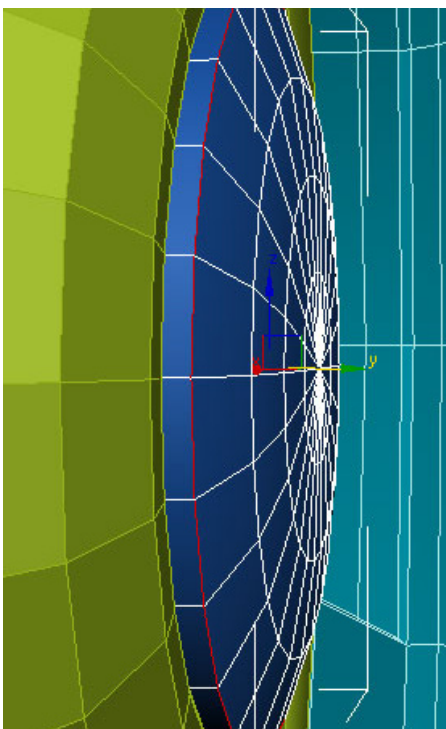
46 Chamfer the edges shown in green all the way around the ring. You will have to do some vertex cleanup in a couple places to get rid of triangles. I used a chamfer setting of 0.1.



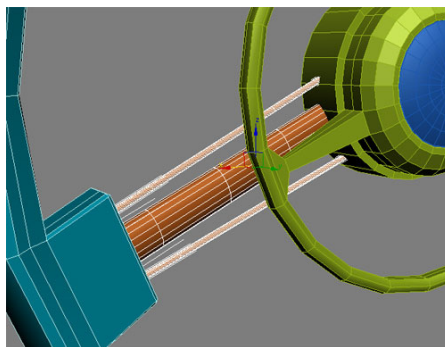
47 Put symmetry and meshsmooth modifiers on the outer ring and the inner ring as well. Shift-drag the cylinder you duplicated earlier and scale it down so that it fits in the hole as shown. Now use the connect tool to cut in the edges highlighted in red in the picture.



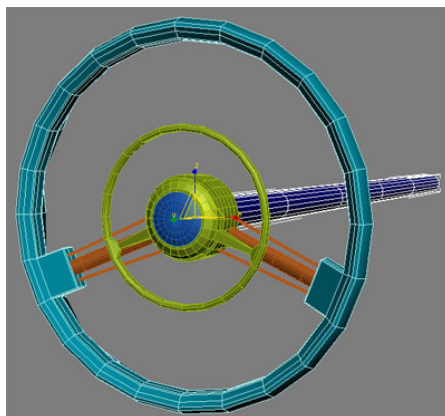
48 Now pull out edge loops to make the front of the cylinder curved as shown. Select the edges shown in red around the cylinder and chamfer them by 0.2 or so. Delete the polys at the back of the cylinder since they are inside the hole and can't be seen. This is to ensure that you don't waste polys. You can now move the cylinder a little farther into the hole so that it doesn't stick out too much. The texture of the Porsche emblem will be mapped onto this cylinder later.



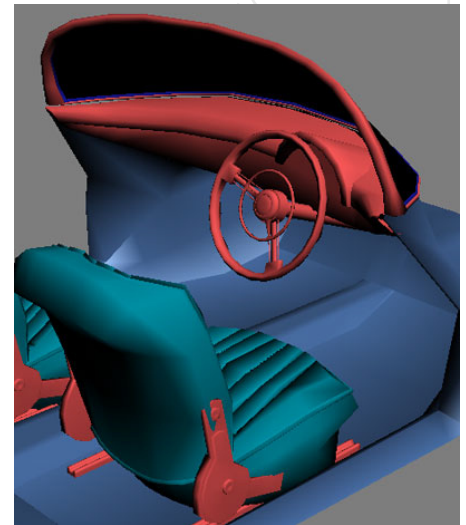
49 Select the cylinder that you originally duplicated and scale it up a little. Now place three cylinders that connect the center to the outer ring as shown in the pic. Squash the larger cylinder in the middle a little. Connect the three cylinders to each other and add a symmetry modifier.



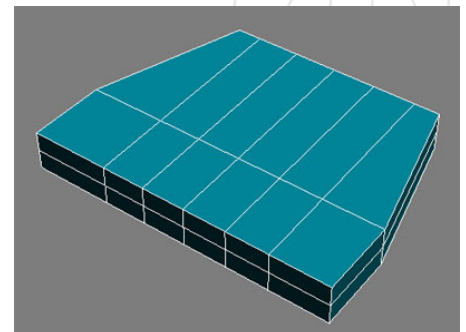
50 Now make yet another cylinder that will be the shaft of the steering wheel. That's basically it for the steering wheel.



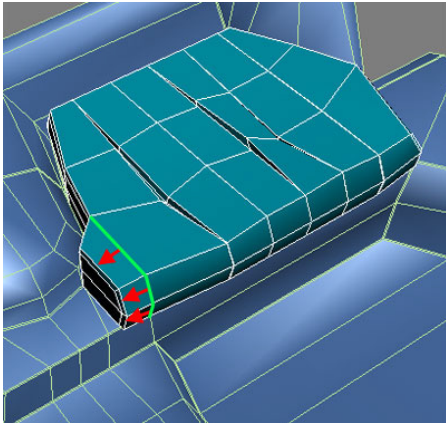
51 Group all the parts together and put it into position. Also, you might want to rotate the steering wheel a little so it's not perfectly lined up and that way you get a better sense of realism. Always try to make things imperfect like that when you are going for realism.



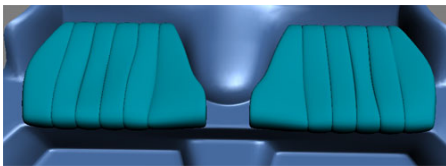
52 We might as well get the back seats out of the way. The back seats are done pretty much the same way as the front seats. Start with a box and shape it into the basic shape of the rear seat cushion.



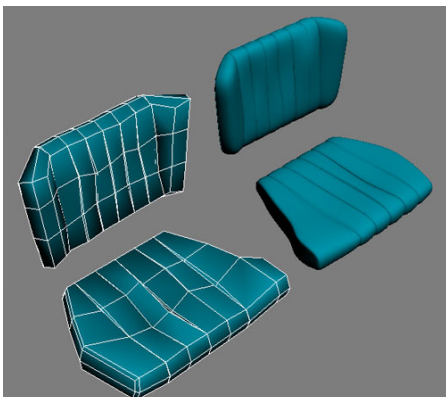
53 Now just do some shaping and tweaking to get it rounder. Make the four ridges in the same way that you did the front seat ridges by extruding. Cut in any edges that you deem necessary. Make sure you shape it so that it fits in the space in the back seat area. Also make the lines a little crooked and natural looking by randomly adjusting vertices. Extrude out the section shown in the picture.



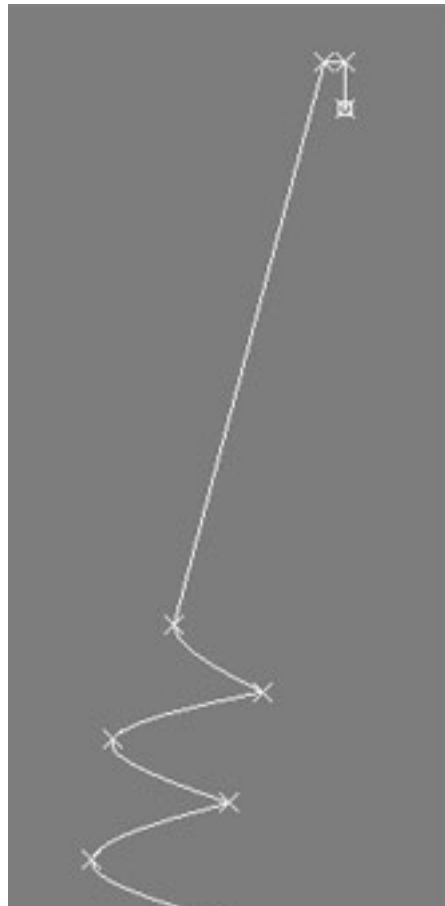
54 Mirror the cushion across to the other side and adjust it so it's not perfectly identical to the other one. When smoothed, they should look something like the picture.



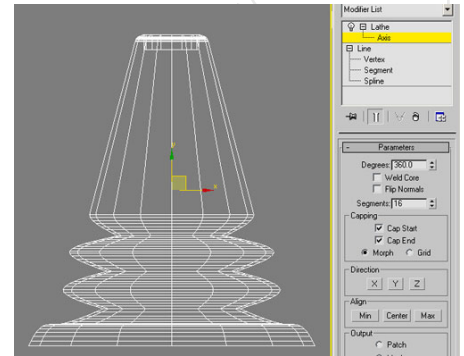
55 The top half of this chair is pretty much made the same way, create a box, shape the box, extrude the ridges, mirror a copy, adjust vertices etc. Surely you get the hang of it by now so I'm not going to go through it step by step in this case. I will just show the finished product and you should have no problem creating the same thing.



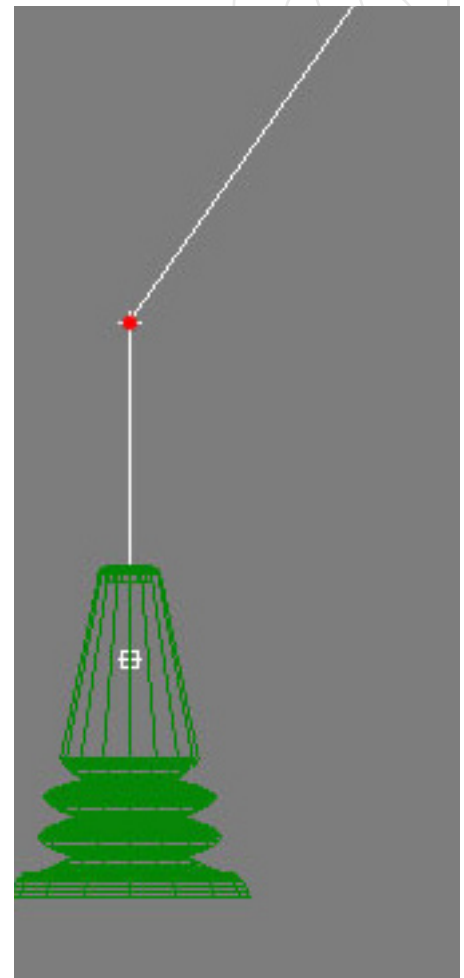
56 Things are progressing very nicely on the interior. Let's now add the gear stick. This is extremely easy to make. We will once again use a spline to make the base of the gear stick. So, draw the shape shown using the line shape tool.



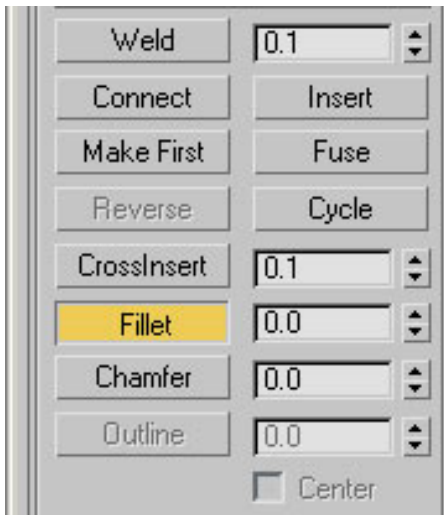
57 Now add a "Lathe" modifier to it and under the lathe modifier there is the "Axis" gizmo. Move it in the viewport till you get the shape shown. The lathe modifier basically takes the spline you drew and rotates it around an axis defined by the axis gizmo. Where you put the axis gizmo determines where the center of the shape is..



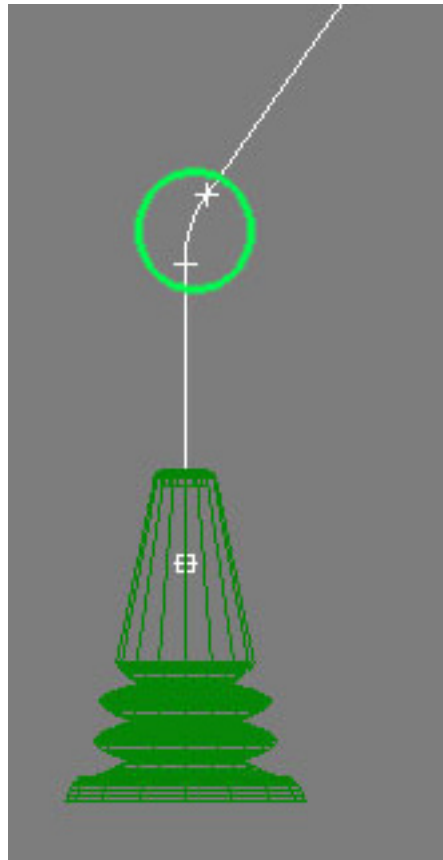
58 Draw another line coming from the center of the shape you just created as shown. Select the vertex shown in red.



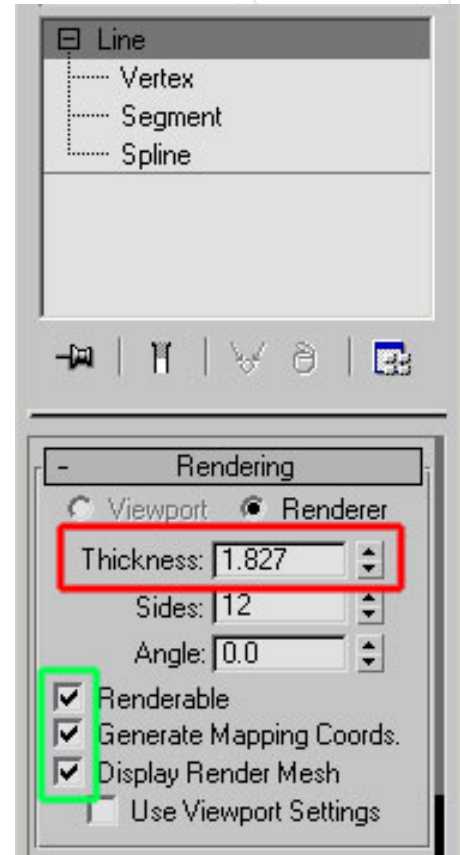
59 The corner on that spline is too sharp so we are going to have to fillet it to round it off. With the vertex from the last picture selected, hit the "Fillet" button.



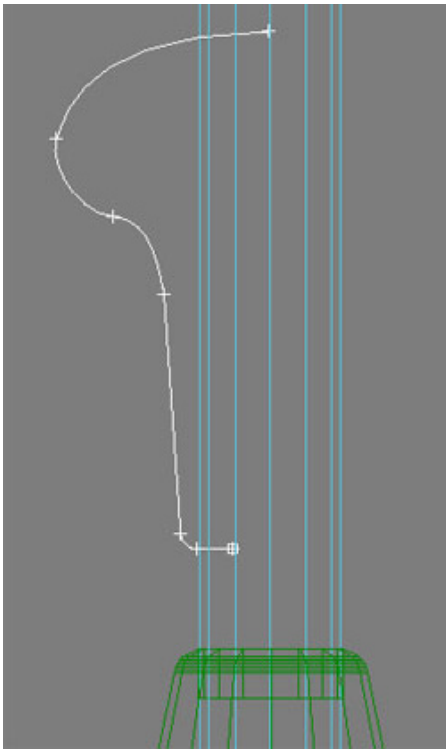
60 Now that the fillet is activated, drag the vertex in the viewport and it will split in two and there will be a nice curve instead of a sharp corner as shown.



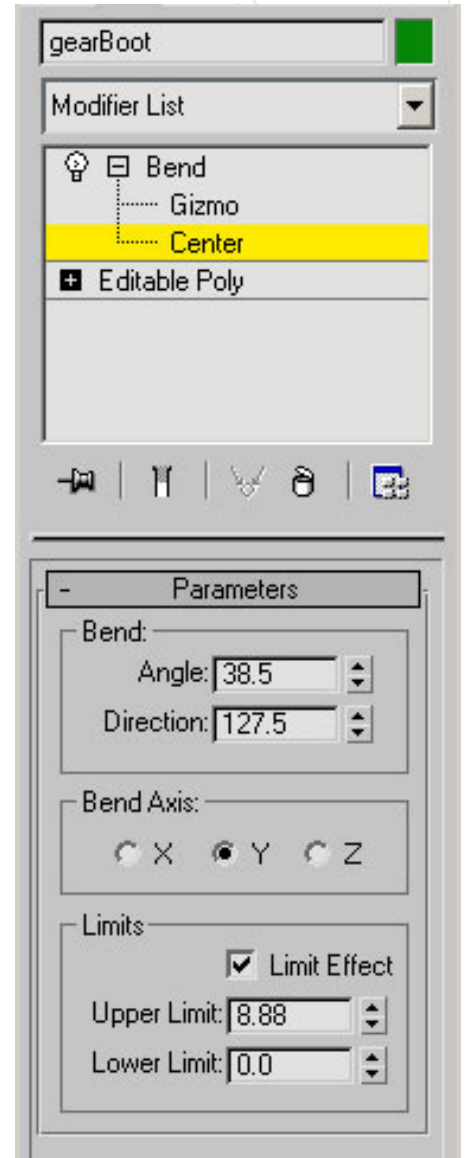
61 Now we want to convert that spline into a bent cylinder. The easiest way to do this is to open the rendering options of the spline and make the spline renderable. The picture shows my settings. Make sure are the checkboxes in the green box are checked. You will have to test different values for the the thickness.



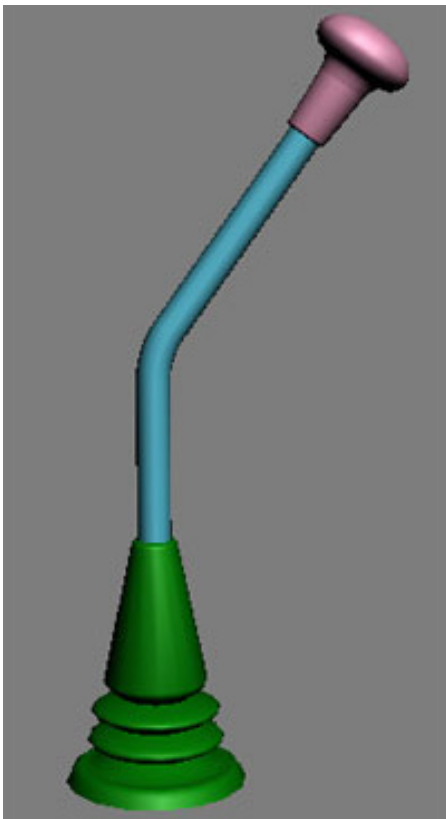
62 Now to create the knob that goes on top of the shaft of the shifter. Create another spline as shown that is about half the width of the shaft. Add a lathe to it and adjust the axis so the it's centered around the shaft.



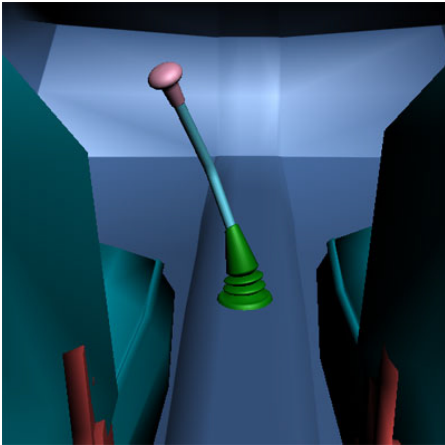
64 Now you could call the gear stick done at this point but to push the realism, we are going to adjust it so it's not perfectly straight and centered as it is right now. First off, select the base of the gear stick and collapse the stack by right-clicking on it and selecting "Collapse All" to turn it into an editable mesh. Right click on it again and convert it to "Editable Poly." Now add a "Bend" modifier to the stack. Select "Center" under the Bend modifier and then in the viewport, move the center of the bend downwards to the base of the object. What this does is it makes the object bend from it's base and not it's middle, which is exactly what we want. Mess with the angle, direction and limit settings to give it a nice bend.



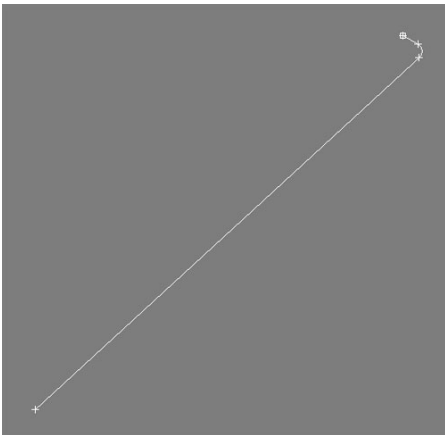
63 Now position the knob at the top of the shaft as shown.



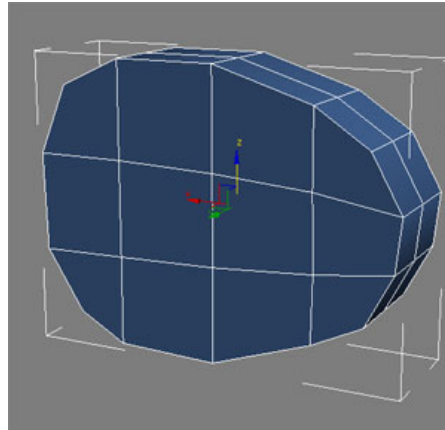
65 When you are happy with your bend, adjust the shaft so that it sticks out of the base. You will have to rotate the shaft into place to do this. A good idea would be to group the shaft and knob so that the knob stays with the shaft when you rotate it. The picture shows mine after positioning it.



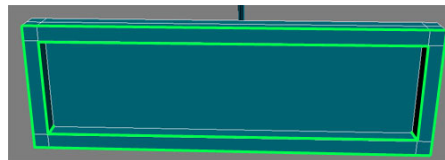
66 Next we are going to tackle the rear-view mirror. Create a spline like the one shown in the picture. It should run from the top of the windshield to the dashboard. Make it renderable like we did earlier on. That completes the bar that the mirror is attached to.



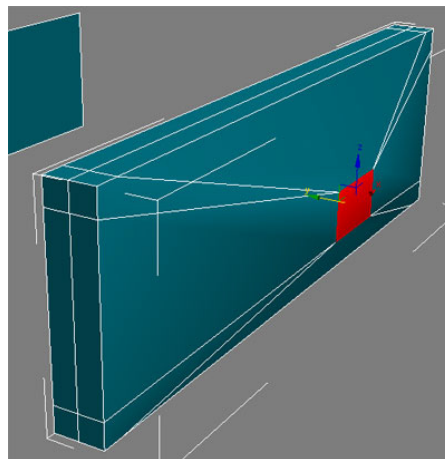
67 The mirror is simply a box. Create the box and arrange edges like shown in the picture. Select the polygon shown in red and extrude it inwards. Detach the selected polygon.



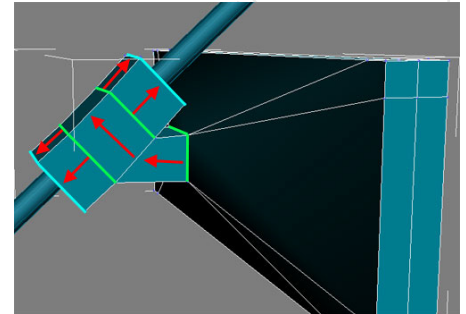
68 Move the detached poly out from the mirror and then chamfer the green edges on the mirror box.



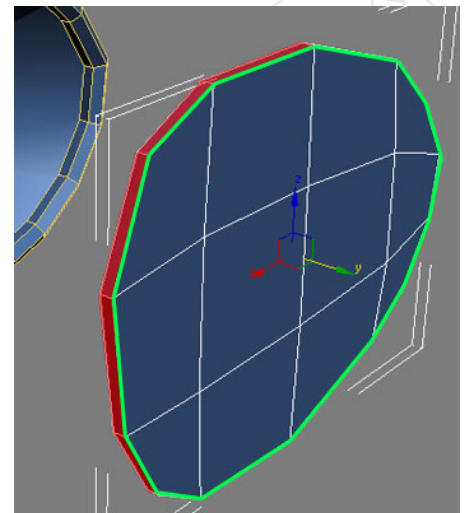
69 On the back, scale down the poly to the size shown and move it outwards a little to make a slope.



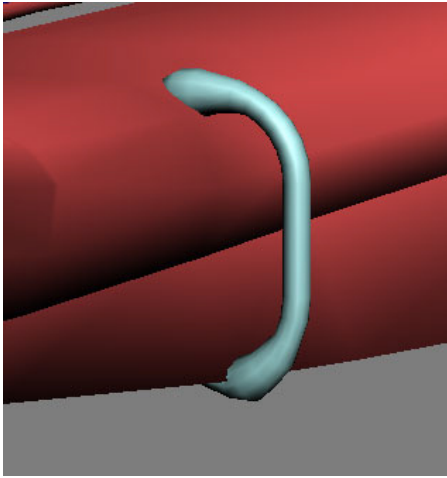
70 Make the extrusions shown in the picture. Chamfer the edges shown in light blue.



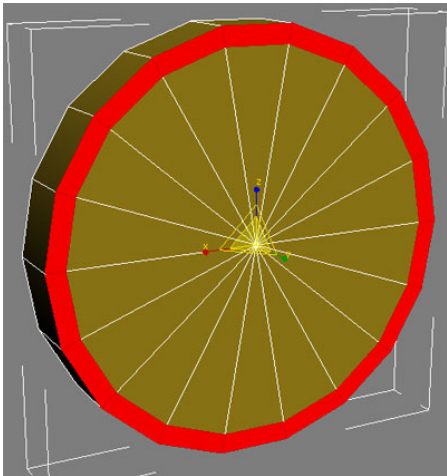
71 Getting back to the poly you detached earlier, this will become the actual reflective glass of the mirror. All you have to do is extrude it's edges a little way inwards as shown and chamfer the green edges. You can then place it back inside the mirror. Position the mirror on the bar that we made earlier and rotate it a little like a real mirror would be.



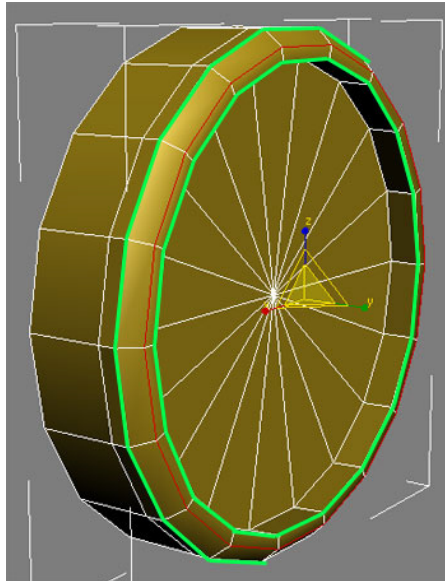
72 There's a little handle that is located on the passenger side of the dashboard. I think by now, something like this should be no problem for you so I will just tell you what I did and let you do it by yourself. Basically, start with a spline and make it renderable then convert it to an editable poly and scale edge loops to get the bulges at either end. Simple!



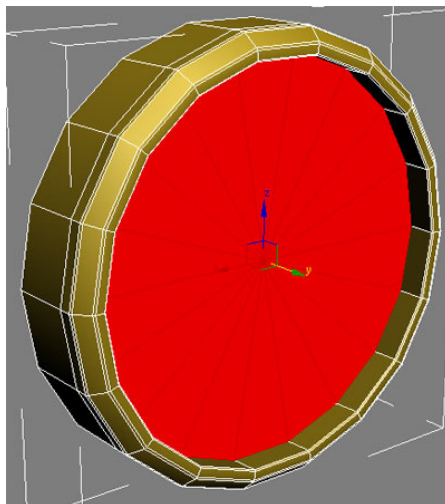
73 The guages are basically flat cylinders. Create a cylinder with 2 cap segments as shown and then extrude the polys selected in the picture outwards. Delete the polys at the back of the cylinder (ie. the polys facing away from the camera in the picture.)



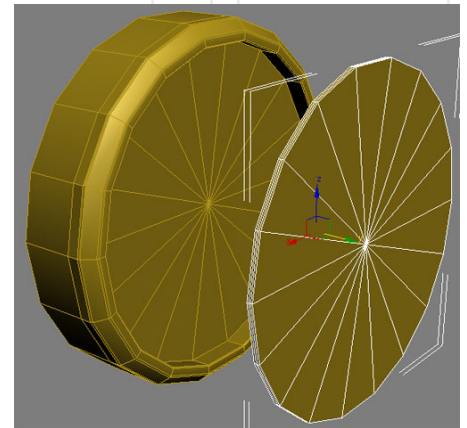
74 Use the "Connect" tool to cut in the edges shown in red. Adjust them so you get the shape shown. Chamfer them. Select the green edges and chamfer them too. A value of about 1.5 should work.



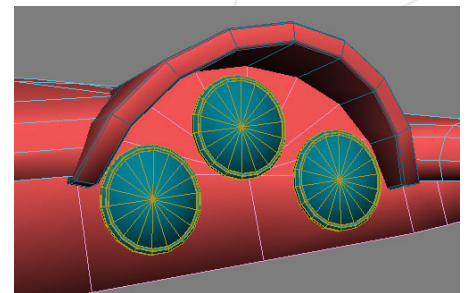
75 Select the polys shown in red and detach them. Duplicate those detached polys. One of the duplicates is going to have the speedometer mapped on to it and you are going to make the glass cover for the gauge with the other. So leave the one that's going to have the speedometer mapped onto it where it is. Move the other duplicate out of the gauge so you can see it better.



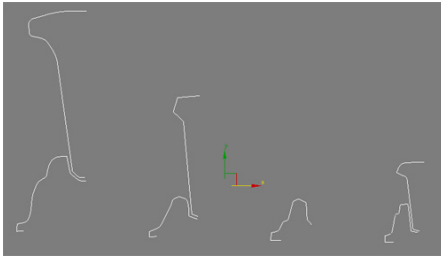
76 Put a "Shell" modifier on it with 3 segments to give it thickness. Smooth all 3 parts. Position the glass in the gauge. It would be a good idea to group the three parts together. If you want, you can also make the gauge needle but you don't really need to. So we have one gauge done.



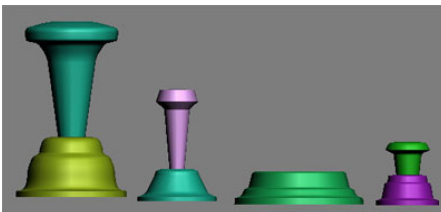
77 Position the gauge in the dashboard behind the steering wheel and then duplicate it twice. Position the three guages as shown.



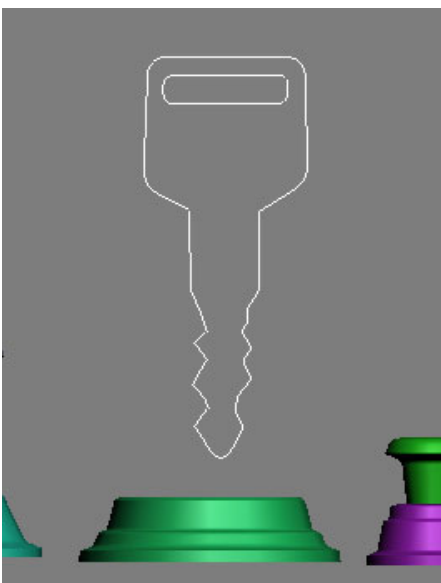
78 There are a bunch of knobs on either side of the guages. These are easily made using splines and lathes. Create splines similar to the ones in the picture and then add "Lathe" modifiers to all of them.



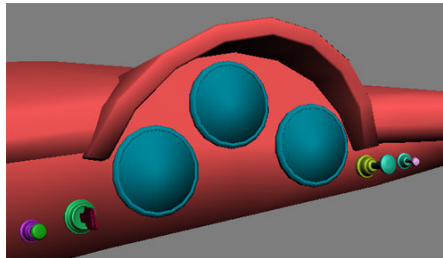
79 This is what they look like lathed. The one without anything sticking out of it is going to be the ignition slot so we have to make a key to stick in there.



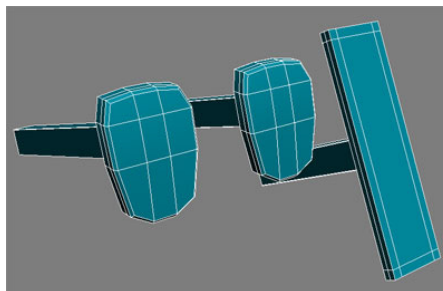
80 Draw the basic shape of a key as shown. To get the hole in the key, draw a rectangle and fillet the corners and then attach it to the spline of the key. Add a shell modifier to it, to turn it into a polygon object. Position it in the keyhole.



81 Now position the pieces in their positions as shown.



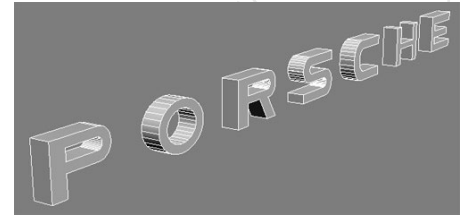
82 The foot pedals are extremely easy to make, they are just boxes with a few extrusions done to them. This is very simple geometry because it won't be seen up close so I won't bother going through it step by step. You can figure it out from the picture.



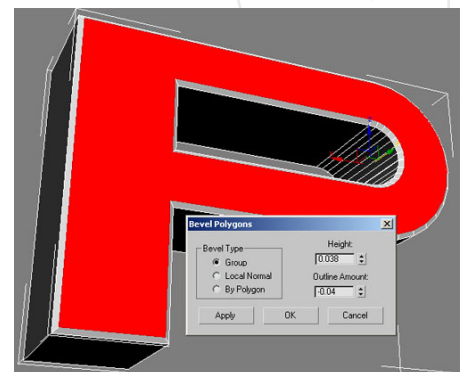
83 Using your reference, draw out the porsche logo with splines as shown. It doesn't really have to be perfect. A tip is to not try and draw the curved edges but to draw sharp corners and then fillet them to make them round. I find this method easier than trying to manually draw out the curves.



84 Put a "Shell" modifier on each letter to flesh it out and you should get something like what I have in the picture.



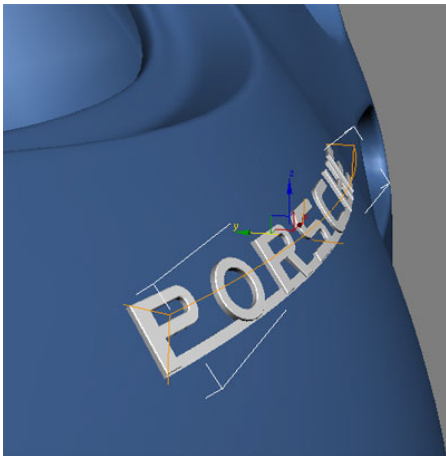
85 It looks good but the letters are flat on the front and I think it would look better with a bit of a bevel to catch the light. Collapse the stacks of the letters and convert them to editable polys. Let's start with the "P" and use the bevel tool. Select the polygon on the front of the letter and then select the bevel tool. The picture shows the settings I used. Do the same for the remaining letters. Use the same bevel settings for each letter. Now the letters will catch highlights nicely. Group the letters together. Make a duplicate of this group and hide it. We will need the letters again later and it would be a pain to have to make them again.



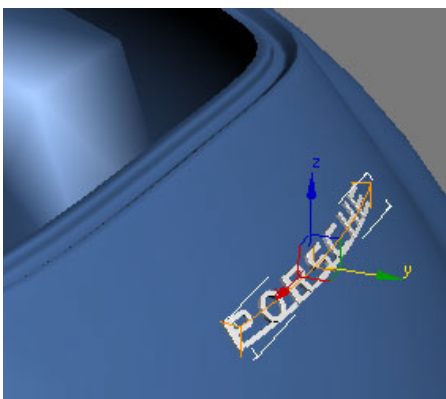
86 Place the letters on the dashboard as shown on the dashboard. Also add two boxes, one above and one below the letters as shown. It's advisable to smooth the dashboard before you do this so you can place the letters more accurately.



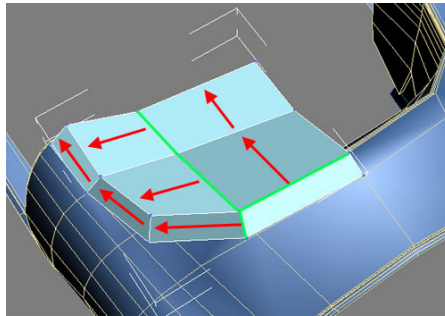
87 Now that we have the letters drawn, we might as well unhide the duplicates we made earlier and place them on the front and back of the car. Let's start with the front. Duplicate the letters and place them as shown just below the bonnet and create a box to place at the bottom of the letters. Group the letters and the box and apply a bend modifier to them. Now tweak the bend settings so that the letters bend around the front of the car. Don't forget to smooth the body of the car so that you can place the letters accurately.



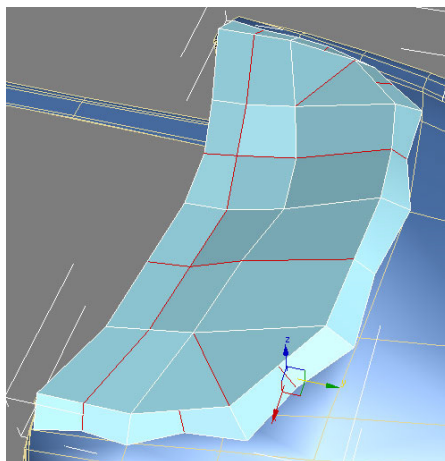
88 Do the same for the back of the car. Duplicate the letters from the front of the car and rotate them 180 degrees. Adjust them to fit at the back, just below the trunk.



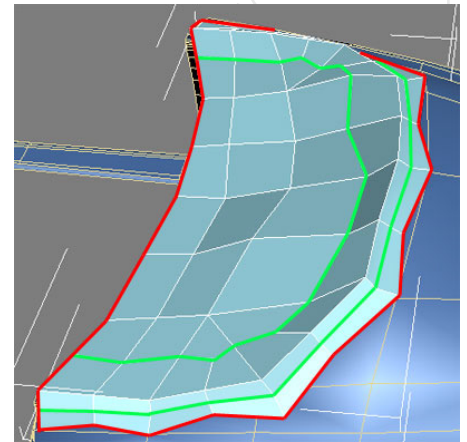
89 Let's make the tarp that's put over the retracted roof. This is just simple polymodeling. Start with a plane at the center of the car and build outwards as shown.



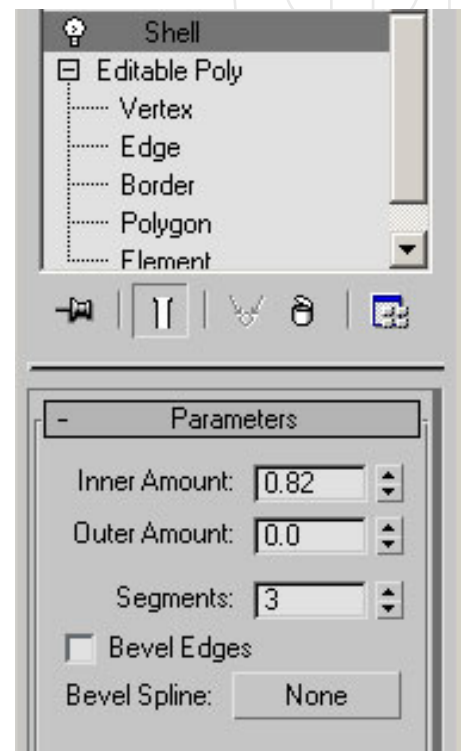
90 Now you have the basic shape, we need to detail it. Put a symmetry modifier on it to make the other half and then collapse the stack. The reason we do this is because we don't want it to be perfectly symmetrical as that would be unrealistic. From now on we are going to work on the tarp as a whole. Make the cuts shown in red and adjust vertices to shape the tarp a little better.



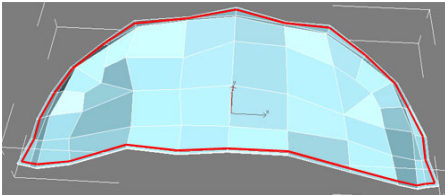
91 Make the green cuts and vertex adjustments as shown. Make sure you make vertices look random. Select the edges shown in red and chamfer them by about 1.5 or so.



92 Add a "Shell" modifier to the geometry. The picture shows the settings that worked for me. After that, collapse the stack again so that the shell modifier becomes part of the geometry. If collapsing converts the geometry to "Editable Mesh," just right-click on it and convert it to an "Editable Poly" and then you should be back on track.



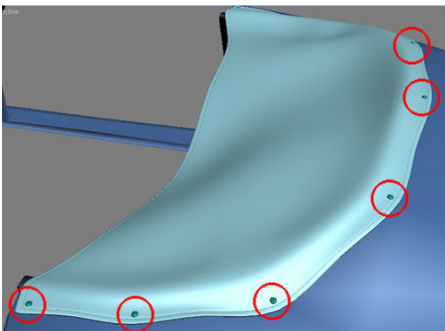
93 On the top of the tarp, select the edges shown in red. Chamfer the edges by about 0.1 or so. This will for a very thin line of polys. Select the thin strip of polys and extrude it inwards a small distance, say about -0.1. That completes the tarp.



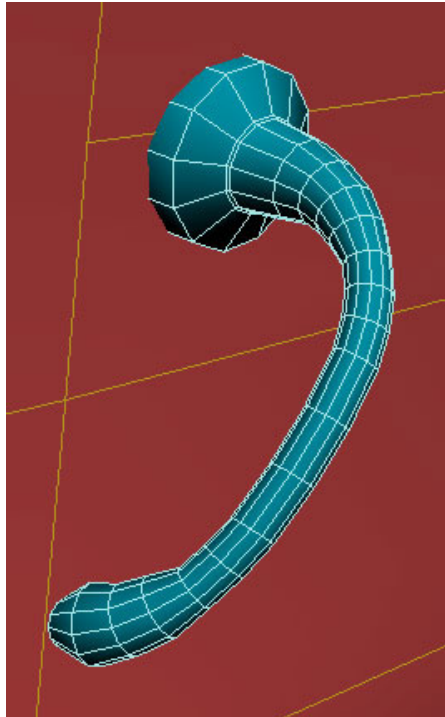
94 The tarp is held on the car by a series of bolts so we must make those now. These are easily made with a spline. Draw the shape shown and lathe it to get the bolt.



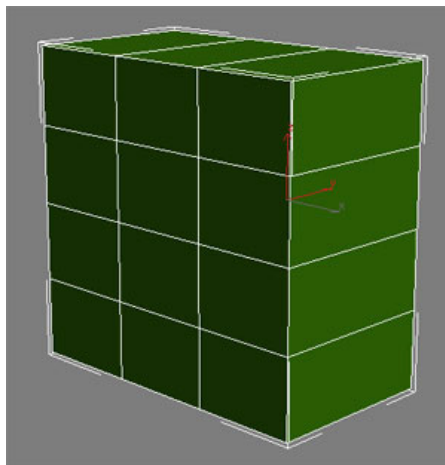
95 Now simply place the bolts all around the tarp at the positions shown.



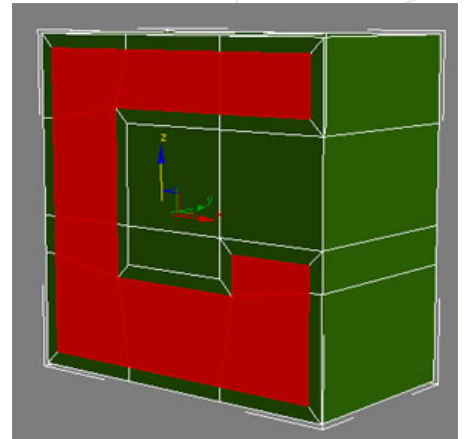
96 The door handle is extremely simple to make and I'm sure you would feel insulted if I went through it step by step!! All you have to do is start with a spline, make it renderable, convert it to a poly and then adjust vertices to shape it.



97 Next is the door latch, start with a box like the one shown.



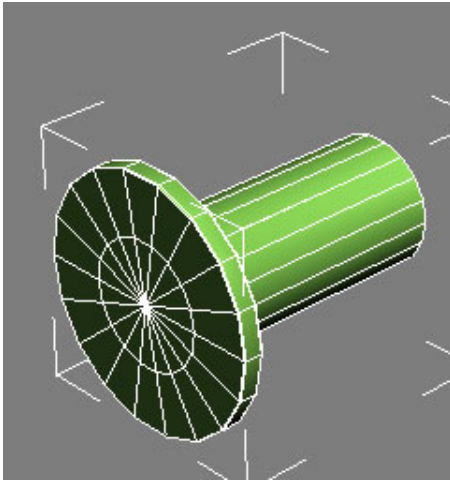
98 Select the polys and inset as shown. Extrude them outwards by about 1. Now just chamfer edges and add symmetry and meshsmooth modifiers.



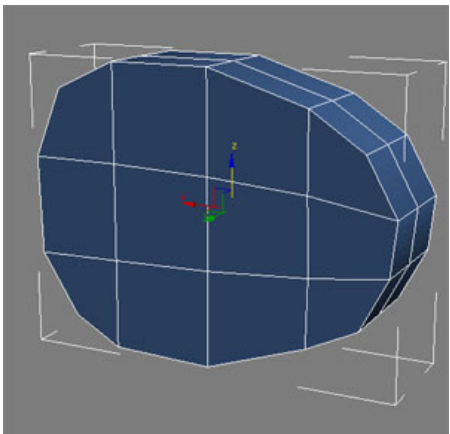
99 Place it in the little cavity that we made in the door area of the car body and shape it to fit in the spot so it's not as square.



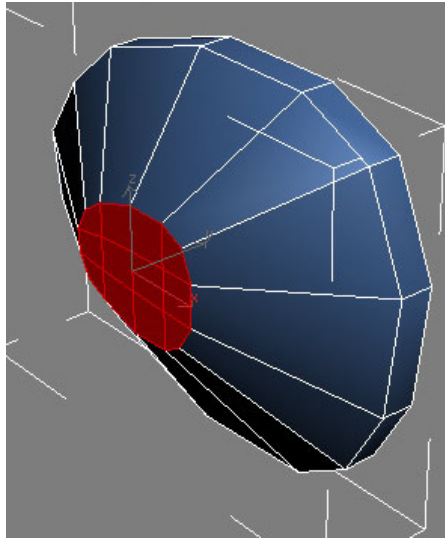
100 Make the latch on the actual door itself by just modifying a cylinder as shown. This is not very realistic and you can make it more realistic if you like but for the purposes of this tutorial, we'll stick with this.



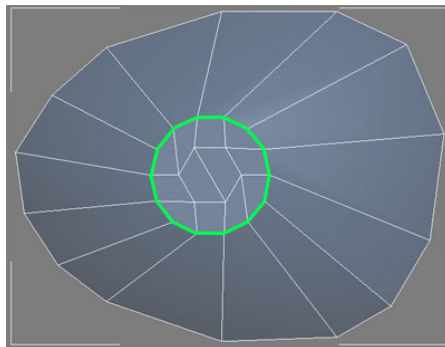
101 We might as well put the side mirrors on the doors. Start with a box with 3 length segs, 4 width segs and 2 height segs. Shape it into the shape shown in the picture.



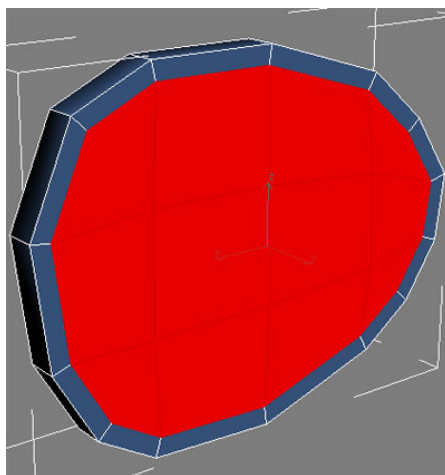
102 Select all the polys at the back of the mirror and scale them down as shown.



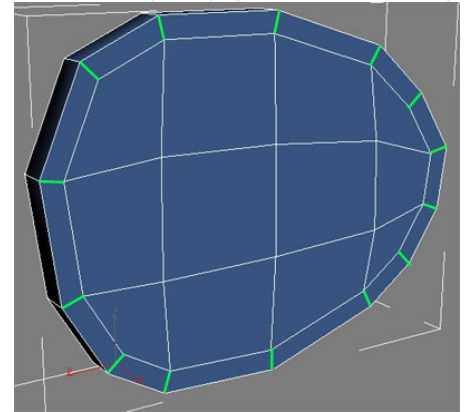
103 Arrange the vertices at the back of the mirror in a circular arrangement as shown. Chamfer the green edges by 0.05 or so.



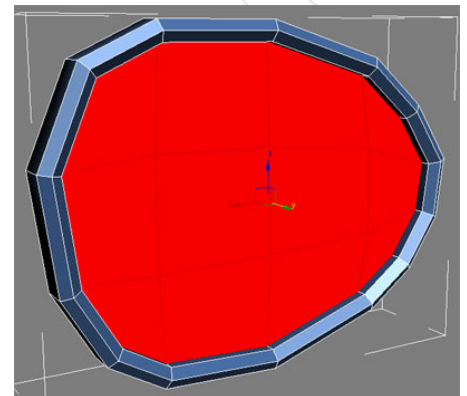
104 Select the polys at the front of the mirror and inset them as shown.



105 Select the edges shown in green and use the "Connect" tool to split them with and add an edge loop around the mirror. Pull the new edge loop outwards to give this area a bit of a bulge.



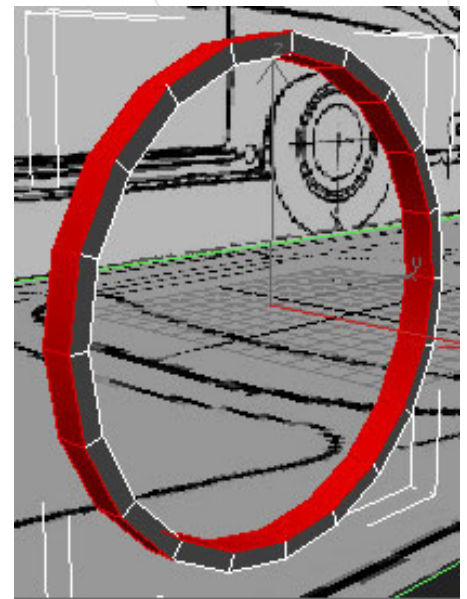
106 Select the polys shown and extrude them inwards a small distance. Detach the selected polys and move them forward, out of the mirror.



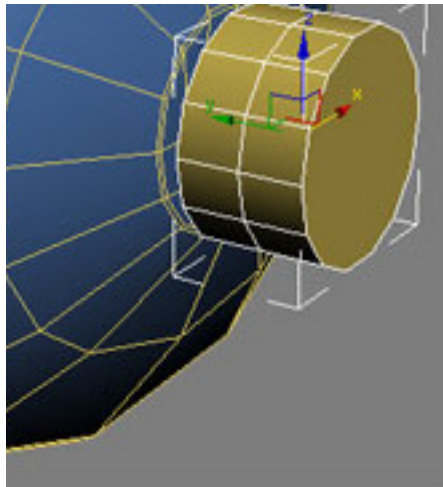
107 In the detached polys, select the edges shown in green and shift-drag them to create the thin line of polys shown in red. Chamfer the green edges to get a nice, sharp edge. The mirror glass is now done, move it back into the mirror casing.

## Wheels

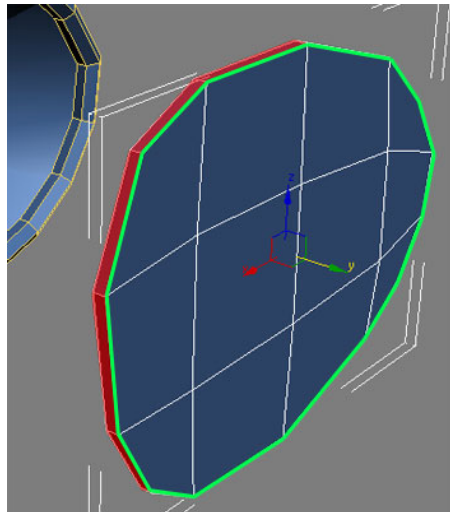
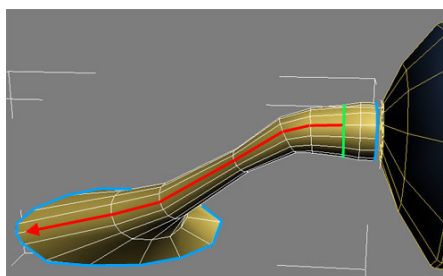
111 We will start on the rims. Create a tube in the side view with 1 height segment, 1 cap segment and 20 sides. Convert it to an editable poly like you did with when you started the body of a car. Select the polys shown in red and delete them leaving just the ring of polys on the top.



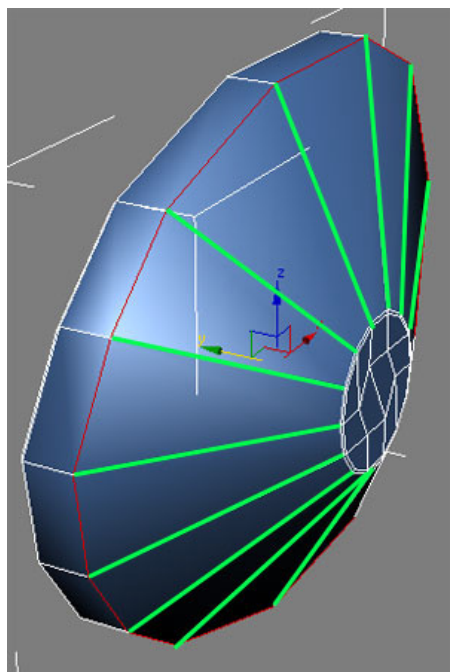
112 Now extrude the green edges a number of times in the direction of the red arrows to get the start of the rim. This is just an easy series of extrudes. The top picture shows a cross-section of the rim to give you a better idea of how I extruded the edges.



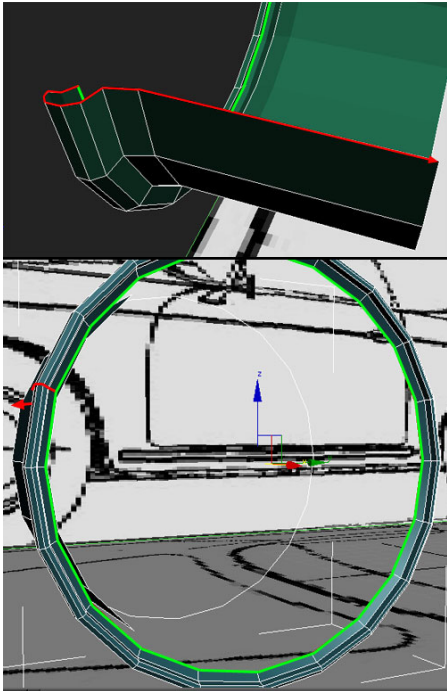
110 Extrude the back poly of the cylinder to create the arm of the mirror as shown. You can use a spline to do it if you like. Adjust vertices to get the shape shown after you extrude. You can unhide the door so that you can make sure that the arm sits on the door properly. Chamfer the edges shown in blue at either end of the arm. Try different chamfer settings till you have something you like. Now just group the mirror with the door and mirror one to the other side of the car and group it with that door.



108 Select the edges shown in red and chamfer them by 0.2. Select the green edges all around the back of the mirror and use the "Connect" tool to create an edge loop about half way down those edges. Select the new edge loop and move it outwards a little to give the back of the mirror a little bit of a bulge.

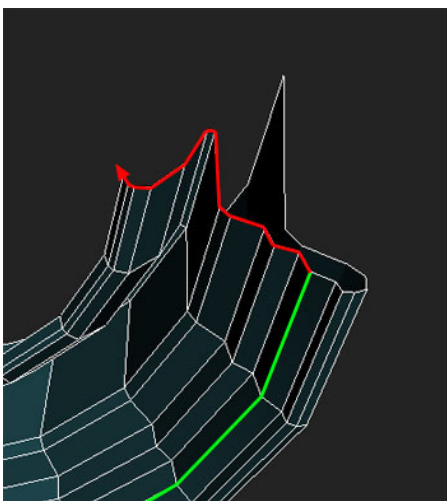


109 Create a cylinder and line it up with the edge ring on the back of the mirror.



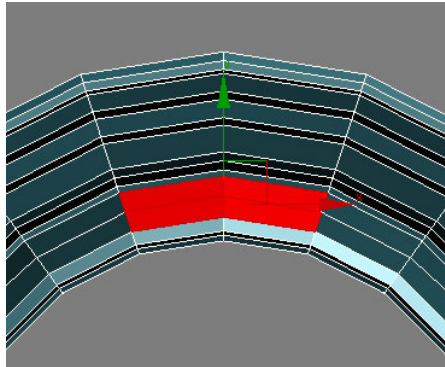
113 The picture shows another cross-section of the rim. Select the green edges all around the rim and begin extruding inwards as shown by the red arrow. Check your reference images to get the shape right.

Note: DO NOT cut your rim in half like I did, I just did it to make it clearer to see how I extruded the edges.

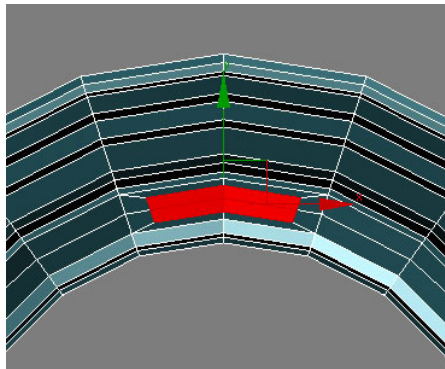


114 Next we have to make the holes in the rim. There are 10 holes which is why we created a tube with 20 sides at the beginning.

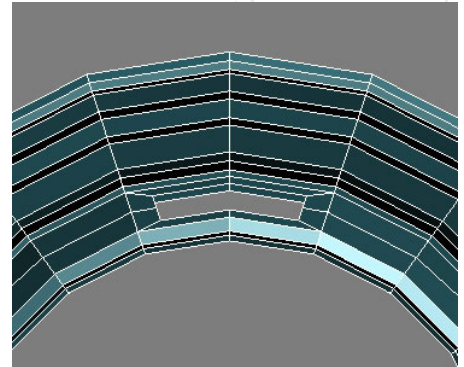
Select the four polys shown in red.



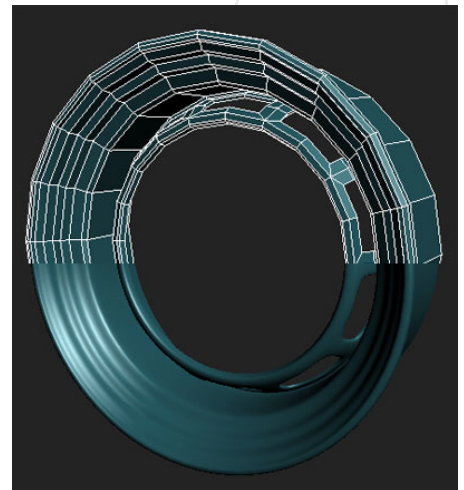
115 Inset the selected polygons by about 2 as shown.



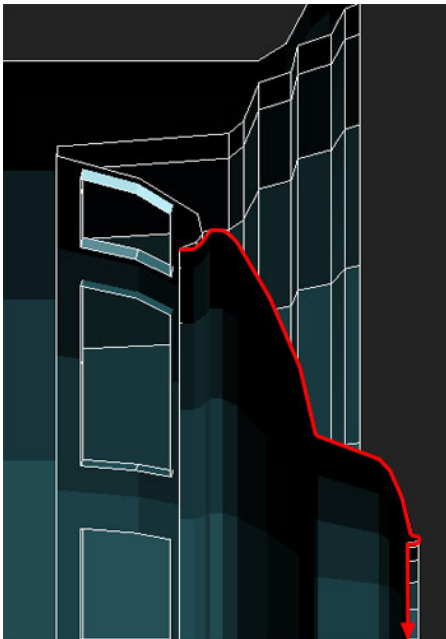
116 Extrude them inwards by -0.6 and then delete them. You have now completed the first hole in the rim. Do the same for the next four polys on the rim and keep going around the rim till you have made all 10 holes.



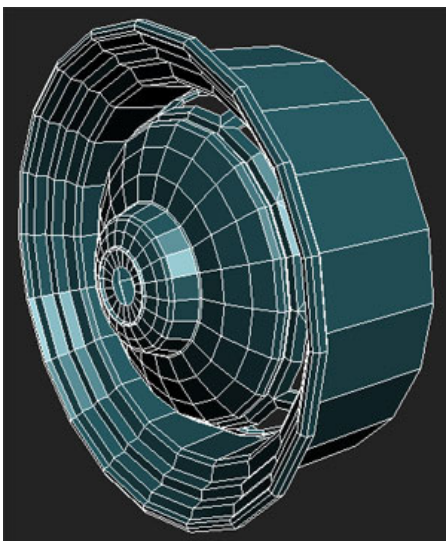
117 When you have created all the holes, your rim should look like the picture.



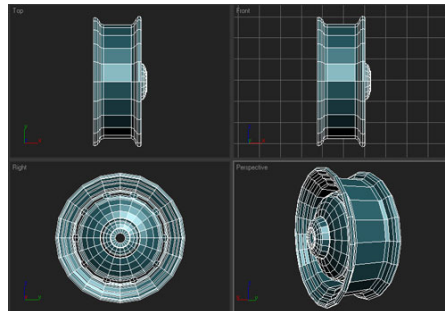
118 Time to continue the extrusions. The picture shows a cross-section from the top view. Extrude the edges from where you stopped and go in the direction of the red arrow. This will require a number of extrusions to get the shape right.



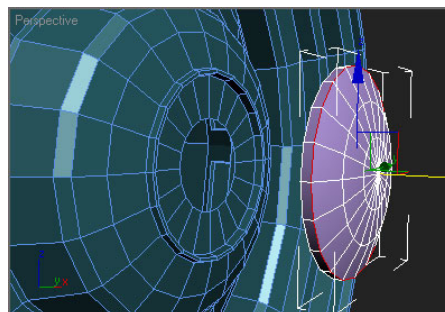
119 This is what your rim should look like now.



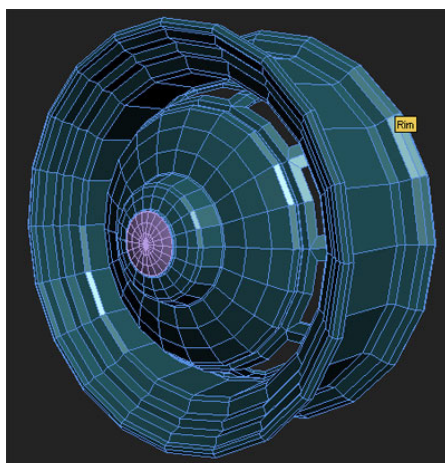
120 If you want, you can finish off the back end of the rim but it's not really necessary since it is unlikely to be seen at any time. The picture shows how I did mine. If you decide to do it, you can figure out how to do it from what you have learned so far.



121 We need to add the little emblem to the front of the rim. This is easily done with a 20 sided cylinder with 3 cap segments and 1 height segment. Position the cylinder in front of the rim and delete the back polys of the cylinder since they are not going to be seen. Flatten the cylinder to make it really thin. Pull out the edges in the cap segments to give it a nice curvature. Chamfer the edges shown in red by 0.1.

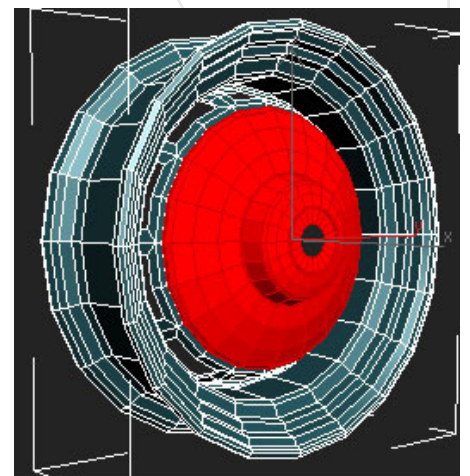


122 Position the emblem in the rim as shown.

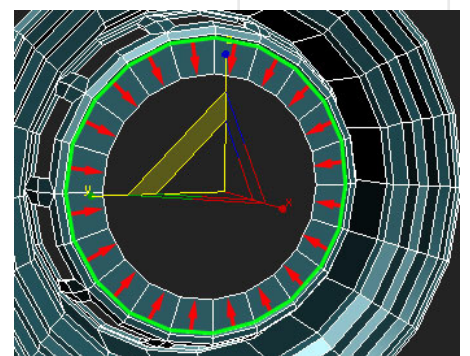


123 We want to make the rim more versatile so we are actually going to detach the hubcap from the rest of the rim and model the stuff that's beneath it. This way, you can also have a spare tire since the spare tire doesn't have a hubcap on it.

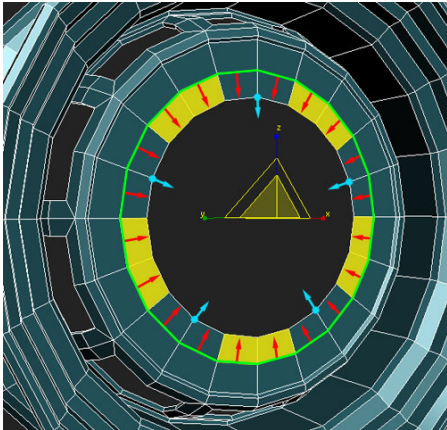
Select the polys shown in red and detach them. Name the detached polys "Hubcap" and hide them.



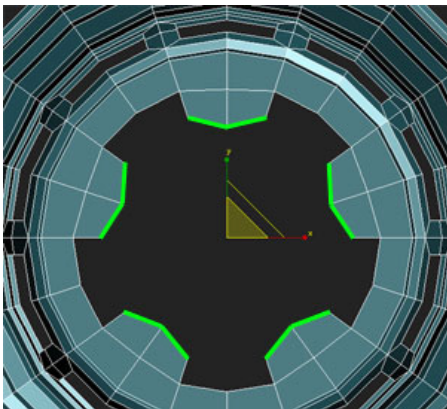
124 Select the edges shown in green and extrude them inwards as shown.



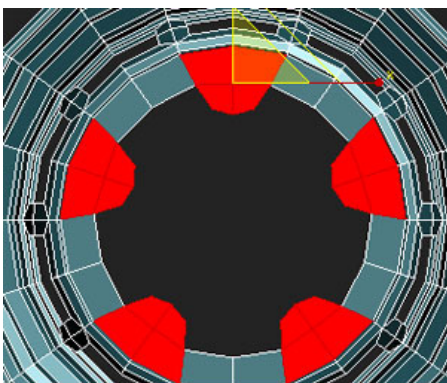
125 Select the edges shown in green and make another extrusion as shown. Delete the polys shown in yellow and delete them. Select the vertices shown in light blue and scale them inwards a little.



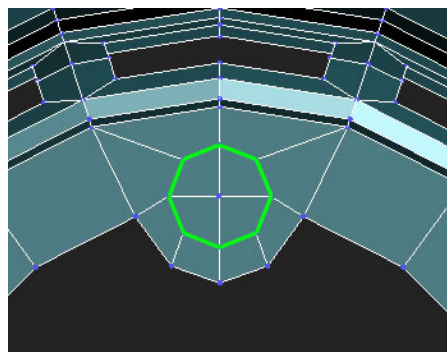
126 Select the green edges and scale them down a little to make the points a little narrower.



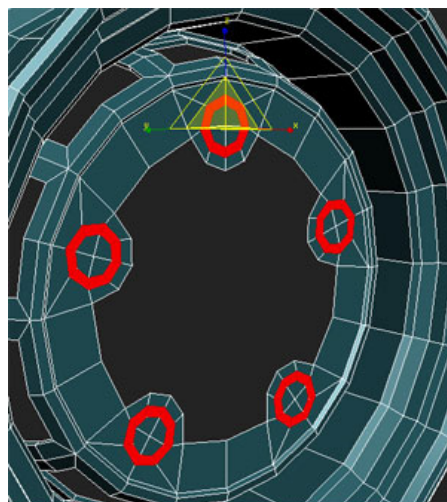
127 Select the polys that are shown in red and inset them using the "Inset" tool by a value of about 2.



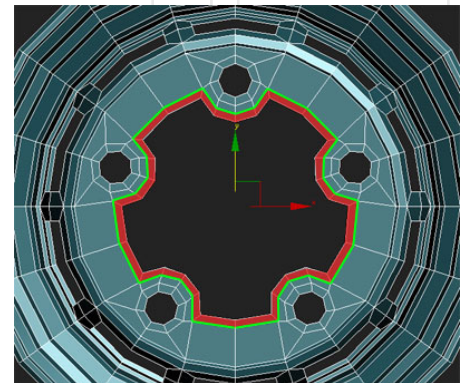
128 Rearrange the vertices around the inset polygons and arrange them in the shape of an octagon. An easy way to do this is to create an 8-sided n-gon and position it in front of the rim and the use that as a guide for where to place your vertices. The reason you do this is to get a perfect circle when you smooth the geometry. Now do the same thing for the other four. Now select the edges shown in green for and chamfer it by 0.5.



129 Select the polygons shown in the picture the extrude them outwards by about 1.5. Now delete the polygons in each circle and delete them to make the holes.

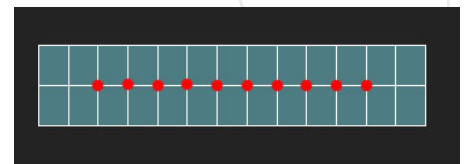


130 Select the green edges shown and extrude inwards to create the polys shown in red. Adjust vertices to get a good shape. Now select the polys you just created and extrude them outwards by 1.5 to create a ridge around the inside of the rim. The rim is now complete. You can now unhide the hubcap.

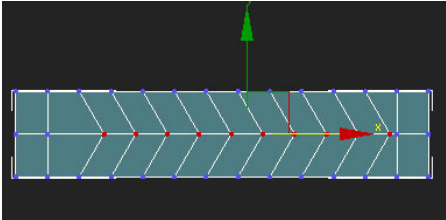


131 Let's start on the tire tread now. There are millions of tire patterns out there but you should be able to get an idea of good tire treads from your reference images. I prefer to model my tire treads instead of using a bump map because it looks better and you can do closeups of the tire.

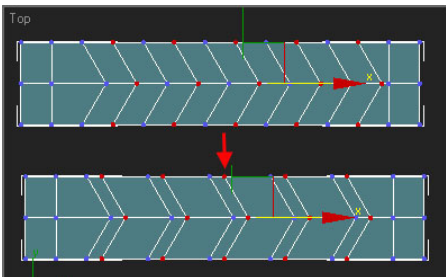
So let's start with a plane in the top viewport with 2 length segs and 13 width segs. Convert it to a poly and then select the 10 shown vertices.



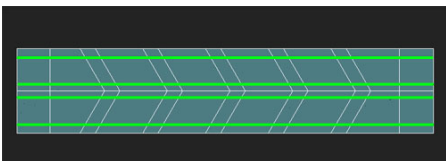
132 Drag the selected vertices to the right as shown.



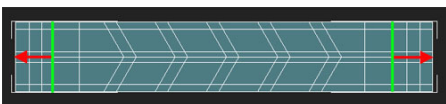
133 Select the vertices shown in the top half of the picture and move them to the left a little to make it look like the bottom part of the picture.



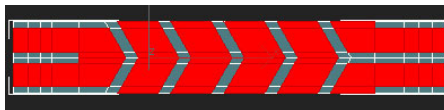
134 Make the cuts shown in green. You can use the "QuickSlice" tool or if you know how to use the "Slice Plane" tool you can use that too.



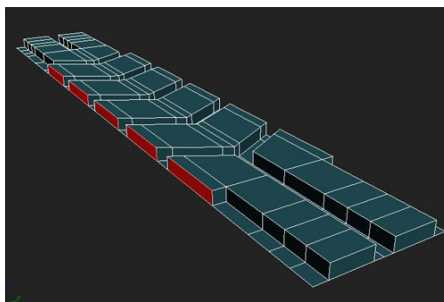
135 Make 3 extrusions on each side as shown in the picture.



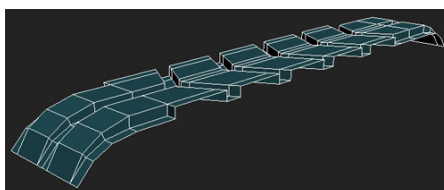
136 Now select the polys shown and extrude them upwards.



137 The extruded tread pattern should look like the picture. Delete the red polys on both sides of the tread.

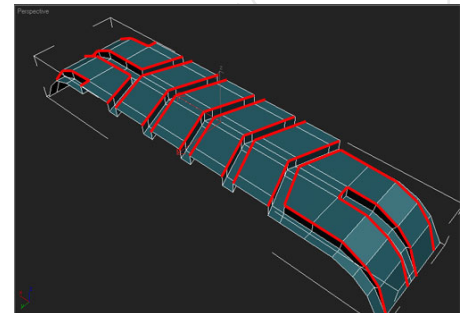


138 Now you have to adjust the vertices at the ends to give the tread some curvature at either side.

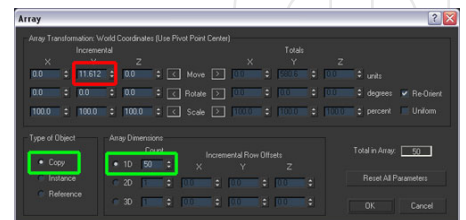


139 You can leave the tread like it is and go to the next step if you want because what I'm about to suggest will add a LOT of polys to the tread, especially since you are clone this tread about 40 or 50 times.

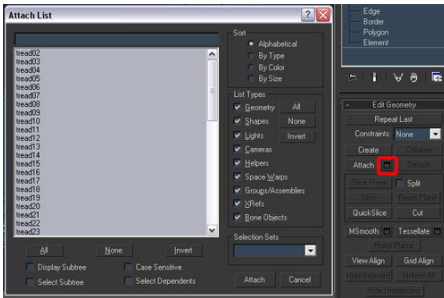
Anyway select the red edges and chamfer them by 0.2 or whatever works for you. The reason I chamfer them is so that the corners can catch the light realistically when rendered. It's up to you whether you want to do this or not.



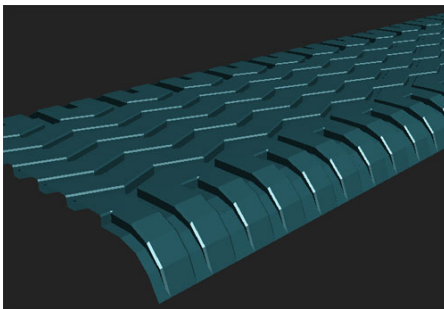
140 Now we have to clone the tread pattern a number of times. In the menu, select Tools->Array to open the array dialog box. The picture shows the settings I used but you will have to test the value you put in the red box because it's going to be different for everyone. You want to use a value that will place all the treads right next to each other with no overlap and no gaps. Play with it and you will get it right.



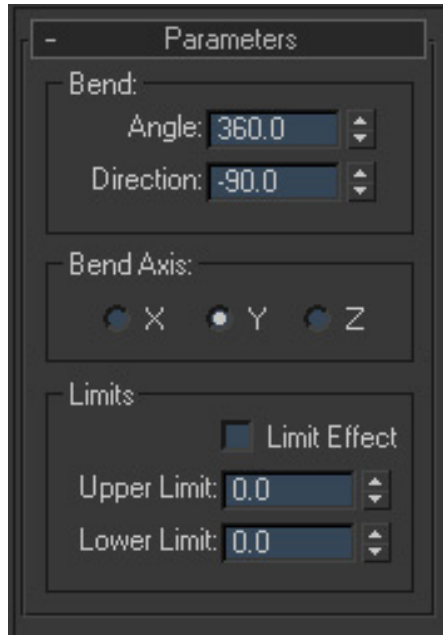
141 When you have got it right, you have to attach all the pieces together. Select the original piece and click the little button next to the "Attach" button (shown in the red box) to open the Attach List. Select all the tread pieces in the list and then click "Attach." Now the pieces are all one piece of geometry. Add a "Vertex Weld" modifier from the modifier list and test different values for the threshold. This will weld any overlapping vertices automatically without you having to go through and do them one by one.



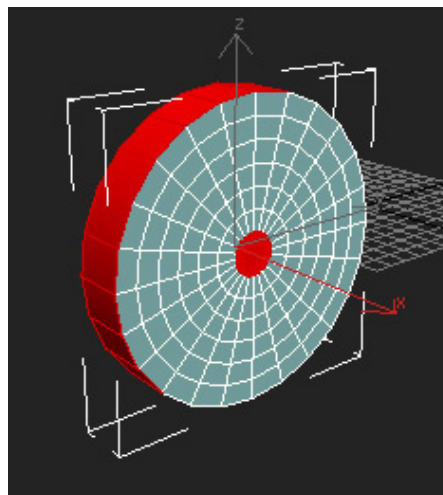
142 When you are done with that, your tread should look something like the picture. Notice how chamfering the edges gives the tread nice highlights that wouldn't be there without the chamfer.



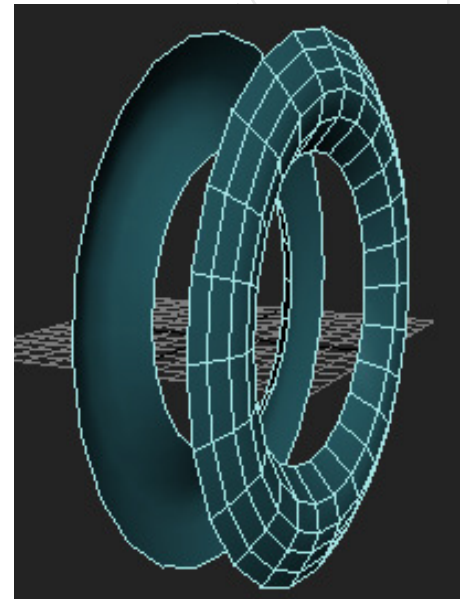
143 The next thing to do is to add a bend modifier to the tread so that it forms a circle. You will have to fudge with the settings to get it to work right for you. These are my settings but they might not work for you so mess with them till you get it right.



144 Now we have to make the remaining part of the tire. Create a cylinder with 6 or 7 cap segments and position it inside the tire tread. Convert it to a polygon and select the polys shown in red and delete them.



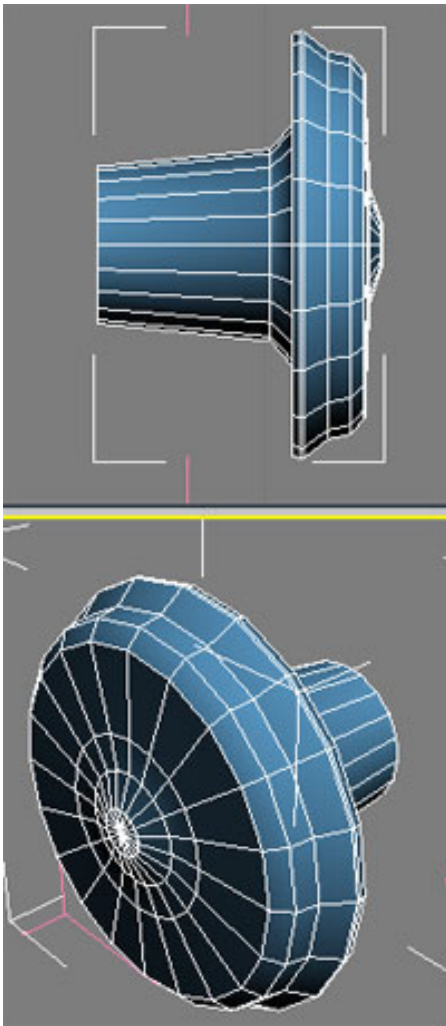
145 Now you just have to select edge loops and move them outwards to bulge out the tire. When you are done, you should have something like the picture. That was easy.



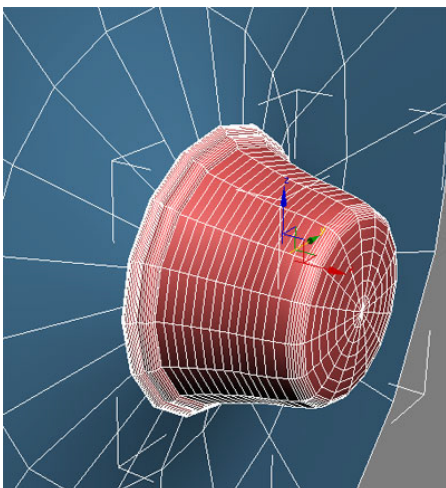
146 When you put it all together, your tire will look like the picture (shown without the hubcap).



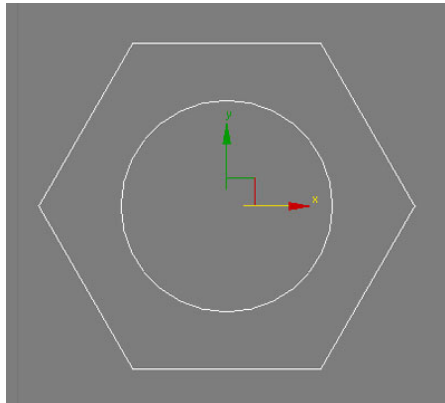
147 We will add a couple more details to the wheels. Create a 20 sided cylinder and adjust it to make the shape shown in the picture. You could also draw a spline and do it that way but I preferred using a cylinder because it gave me more control. Make sure it fits snugly behind the rim. The "Connect" tool works well for adding edges.



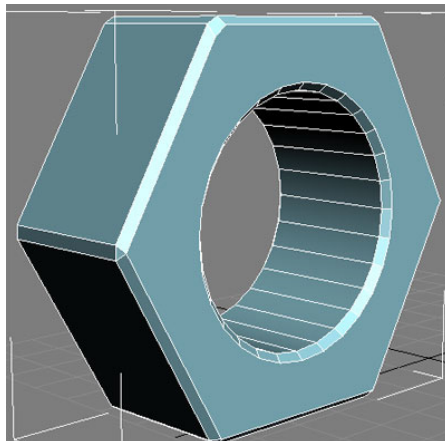
148 Draw a spline and lathe it to create the cap shown for the front of the brake drum you just created.



149 Create a hexagon n-gon and then create a circle inside of it. Attach them so they become one object then add a shell modifier to them to create a nut for the rim. Collapse the stack and then convert it to an Editable Poly.



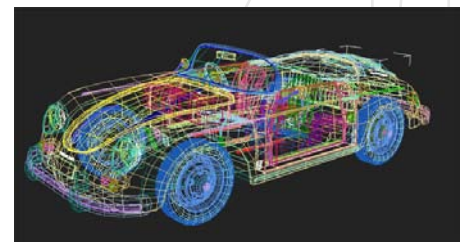
150 Chamfer the edges as needed to get a nut that looks like the one in the picture. Now just put a cylinder through the hole for the screw.



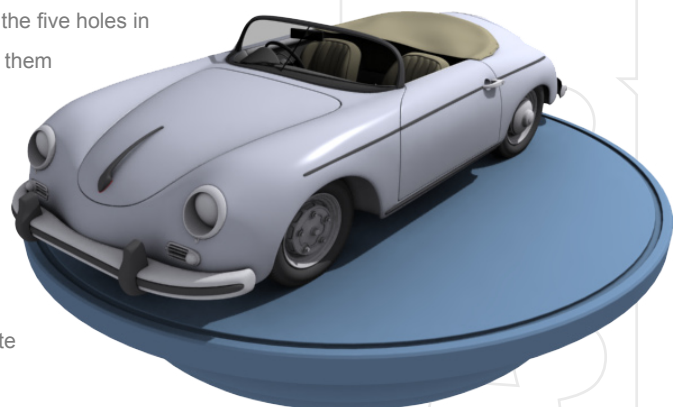
151 Duplicate it 4 times and place them around the rim, lined up with the five holes in the rim. Make sure you rotate them randomly so they are not all the same. The picture shows the final product. You can now group all the parts together and duplicate it 3 times for the rest of the tires. You can also make a duplicate for the spare tire.



152 Now you can put everything together that we have modeled and you should have a nice car ready for texturing. Unfortunately, you will have to figure out the texturing of the car yourself as I don't have the time to add more to the tutorial, much as I'd like to.



I hope this tutorial was of some help to you. Feel free to email me and let me know what you think of it at [karabo@gmail.com](mailto:karabo@gmail.com).





galleries



## FURNITURE CLUSTER

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MY LITTLE PRINCESS

JAKC

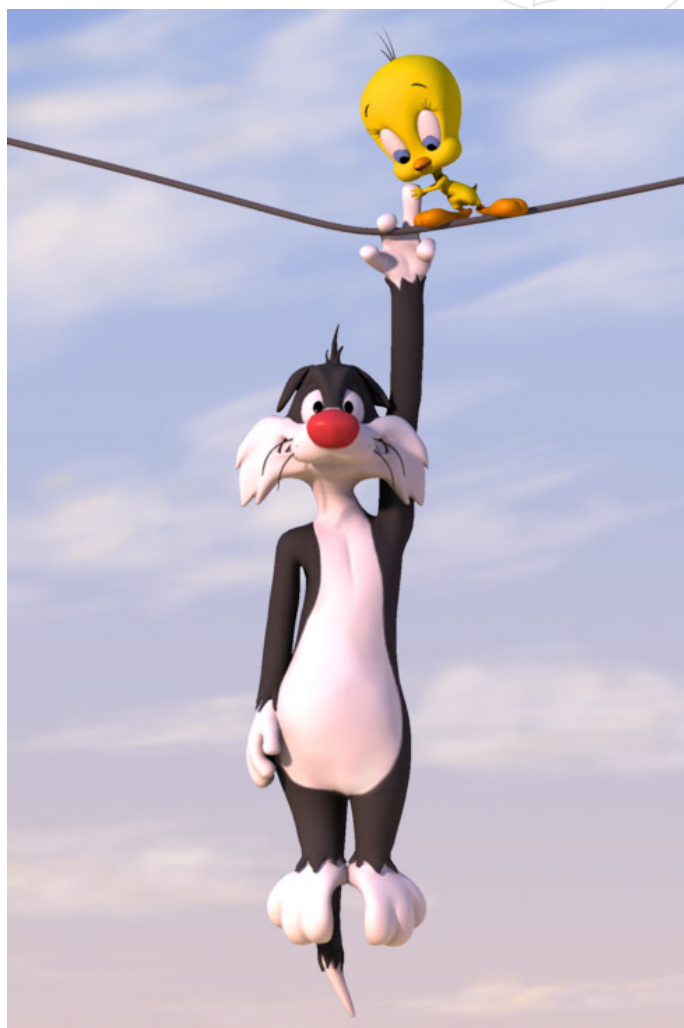
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catch the 'making of' for this image next month





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post-production



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